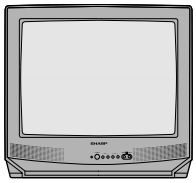
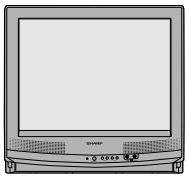
SHARP SERVICE MANUAL

S67A419J-M100



19J-M100/150/100S

CJ19M10



20J-M100

CJ20M10

COLOR TELEVISION

Chassis No. SN-70

19J-M100/19J-M100S

19J-M150/CJ19M10

MODELS 20J-M100/CJ20M10/20MJ10

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 120 V AC 60 Hz
POWER RATING ..... 84 W
PICTURE SIZE ..... 19":1194cm^2(185sq inch)
..... 20":1240cm^2(192sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES
Picture IF Carrier Frequency ..... 45.75 MHz
Sound IF Carrier Frequency ..... 41.25 MHz
Color Sub-Carrier Frequency ..... 42.17 MHz
(Nominal)
AUDIO POWER
OUTPUT RATING ..... 0.9W (at 10% distortion)
SPEAKER
SIZE ..... 8cm(Round)
VOICE COIL IMPEDANCE ..... 8ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
VHF-Channels 2thru 13
UHF-Channels 14thru 69
CATV Channels 1thru 125
USA: (EIA, Channel Plan)

Specifications are subject to change without prior notice.

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SHARP ELECTRONICS CORPORATION
Service Headquarters: Sharp Plaza, Mahwah, New Jersey 07430-2135
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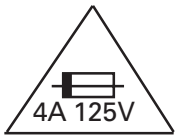
335 Britannia Road East Mississauga, Ontario L4Z 1W9 Canada
SHARP CORPORATION

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulation material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit.The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



CAUTION: FOR CONTINUED PROTECTION AGAINST A RISKOF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation if the high
   voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that service personal have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and; also under certain conditions, may produce radiation that exceeds specifications.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

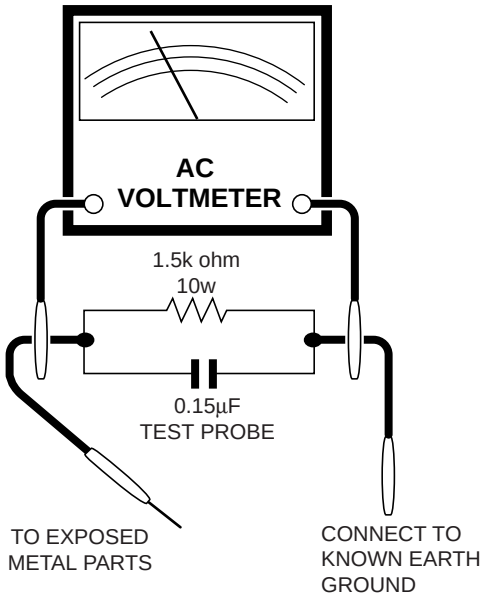
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, using reverse polarity.(Do not use an isolation transformer for this test).
- Using to clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15∝F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  AII check must be repeated with the AC line cord plug connection reversed. (IF necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp.
  Any measurements not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have special safety characteristics are identified in this manual; electrical components having such features are identified by " ⚠ " and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit.

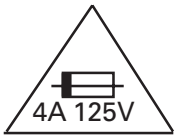
The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

PRECAUTIONS A PRENDRE LORS DE LA REPARATION

■ **Ne peut effectuer la réparation qu' un technicien spécialisé qui s'est parfaitement accoutumé à toute vérification de sécurité et aux conseils suivants.**

AVERTISSEMENT

1. N'entreprendre aucune modification de tout circuit. C'est dangereux.
2. Débrancher le récepteur avant toute réparation.
3. Les déversoirs thermiques à semi-conducteurs peuvent présenter un danger de choc électrique lorsque le réceqteur est en marche.
4. Le châssis de ce récepteur possède deux systèmes de masse qui sont séparées par du matériel d'isolation. Le système de masse non-isolée (sous tension) est pour le circuit du régulateur de tension + B et le circuit de sortie horizontale. Le système de masse isolée est pour les tensions DC + B basses et le circuit secondaire du transformateur haute tension. Pour éviter tout risque d'électrocution lors de l'entretien de ce châssis, utiliser un transformateur d'isolation entre le cordon de ligne et la prise de courant.



PRECAUTION:POUR LA PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE, REMPLACER LE FUSIBLE PAR UN FUSIBLE DE MEME TYPE 4A-125V.

REPARATION DU SYSTEME A HAUTE TENSION ET DU TUBE-IMAGE

Lors de la réparation de ce systéme, supprimer la charge statique en branchant une résistance de 10 kΩ en série avec un fil isolé (comme une sonde d'essai) entre la mise à la terre du tube-image et le fil d'anodel. (Le corden d'alimentation doit être retiré de la prise murale.)

1. Le tube image dans ce récepteur emploie une protection intégrée contre l'implosion.
2. Par mesure de sécurité, changer le tube-image pour un tube du même numéro de type.
3. Ne pas lever le tube-image par son col.
4. Ne manipuler le tube-image qu'en porant des lunettes incassables et qu'après avoir déchargé totalement la haute tension.

LIMITES DES RADIATIONS X ET DE LA HAUTE TENSION

1. Tout le personnel réparateur doit être instruit des instructions et procédés relatifs aux radiations X.
   Le tube-image, seule source de rayons X dons les téléviseurs transistorisés, n'émet pourtant pas de rayons mesurables si la haute tension est maintenue à un niveau préconisé dans la section "Vérification de la haute tension".
   C'est seulement quand la haute tension est excessive que les rayons X peuvent entrer dans l'enveloppe du tube-image y compris le conducteur de verre. Il est important de maintenir la haute tension en-dessous du niveau spécifié.
2. Il est essentiel que le réparateur ait sous la main un voltmètre à haute tension qui doit être périodiquement étalonné.
3. La haute tension doit toujours être maintenue à la valeur de régime -et pas plus haute. L'opération à des tensions plus élevées peut entraîner une panne du tube-image ou du circuit à haute tension et, dans certaines conditions, peut entraîner une radiation dépassant les niveaux préscrits.
4. Quand le régulateur à haute tension fonctionne correctement, il n'y a aucun problème de radiation X. Chaque fois qu'un châssis couleurs est réparé, la luminosité doit être examinée bout en contrôlant la haute tension à l'aide d'un voltmètre pour s'assurer que la haute tension ne dépasse pas la valeur spécifiée et qu'elle soit correctement réglée.
5. Ne pas utiliser un tube-image autre que celui spécifié et ne pas effectuer de modifications déconseillées du circuit à haute tension.
6. Lors de la recherche des pannes et des mesures d'essai sur un récepteur qui présente une haute tension excessive, éviter de s'approcher inutilement du récepteur.
   Ne pas faire fonctionner le récepteur plus longtemps que nécessaire pour localiser la cause de la tension excessive.

PRECAUTIONS A PRENDRE LORS DE LA REPARATION

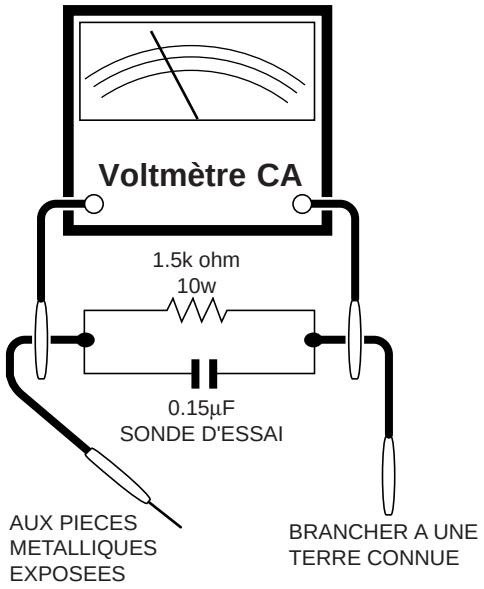
(Suite)

VERIFICATIONS CONTRE L'INCEN-DIE ET LE CHOC ELECTRIQUE

Avant de rendre le récepteur à l'utilisateur, effectuer les vérifications suivantes.

1. Inspecter tous les faisceaux de câbles pour s'assurer que les fils ne soient pas pincés ou qu'un outil ne soit pas placé entre le châssis et les autres pièces métalliques du récepteur.
2. Inspecter tous les dispositifs de protection comme les boutons de commande non-métalliques, les isolants, le dos du coffret, les couvercles ou blindages de réglage et de compartiment, les réseaux de résistance-capacité, les isolateurs mécaniques, etc.
3. S'assurer qu'il n'y ait pas de danger d'électrocution en vérifiant la fuite de courant, de la facon suivante:

- Brancher le cordon d'alimentation directem-ent à une prise de courant de 120V. (Ne pas utiliser de transformateur d'isolation pour cet essai).
- A l'aide de deux fils à pinces, brancher une résistance de 1,5 kΩ 10 watts en parallèle avec un condensateur de 0.15µF en série avec toutes les pièces métalliques exposées du coffret et une terre connue comme une conduite électrique ou une prise de terre branchée à la terre.
- Utiliser un voltmètre CA d'une sensibilité d'au moins 5000Ω/V pour mesurer la chute de tension en travers de la résistance.
- Toucher avec la sonde d'essai les pièces métalliques exposées qui présentent une voie de retour au châssis (antenne, coffret métallique, tête des vis, arbres de commande et des boutons, écusson, etc.) et mesurer la chute de tension CA en-travers de la résistance. Toutes les vérifications doivent être refaites après avoir inversé la fiche du cordon d'alimentation. (Si nécessaire, une prise d'adpatation non polarisée peut être utilisée dans le but de terminer ces vérifications.)
  Tous les courants mesurés ne doivent pas dépasser 0,5 mA.
  Dans le cas contraire, il y a une possibilité de choc électrique qui doit être supprimée avant de rendre le récepteur au client.



AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les téléviseurs présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue. Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.
Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont identifiées par la marque " ⚠ " et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques.
Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies, radiations X ou autres accidents.

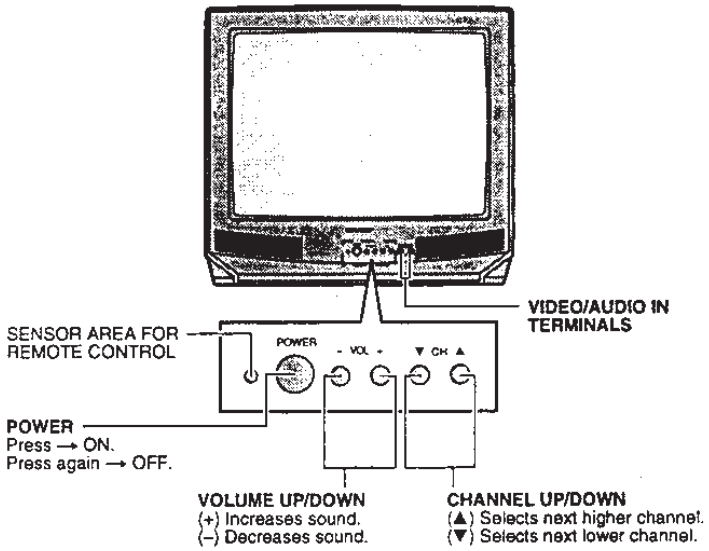
LOCATION OF USER'S CONTROL

19J-M100/150/100S/CJ19M10/20MJ10

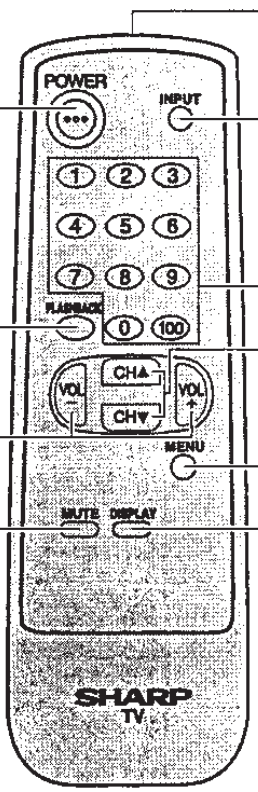
Quick Reference Control Operation

■ Location of Controls (ENGLISH)

Front Panel



BASIC REMOTE CONTROL FUNCTIONS



POWER
Press → On.
Press again → Off.

FLASHBACK
Returns to previously viewed channel.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.
• In menu mode, changes or selects the TV adjustments.

MUTE
Press → Mutes sound.
Press again → Restores sound.
• CLOSED CAPTION appears when sound is muted.

INPUT
Press → Switch to external video input mode.
Press again → Switch to TV mode.
See page 15.

Direct Access
Accesses any channel by the keypad.

CHANNEL UP/DOWN
(▲) Selects next higher channel.
(▼) Selects next lower channel.
• See pages 13, 14 for channel presetting.
• Moves the " ⬍ " mark of the MENU screen.

MENU
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

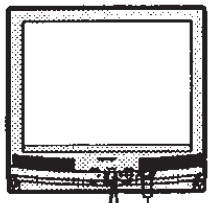
DISPLAY
Press → Displays receiving channel for 4 seconds.
Press again → Removes display.
• Temporarily displays receiving channel when in Closed Caption mode.

20J-M100/CJ20M10

Quick Reference Control Operation

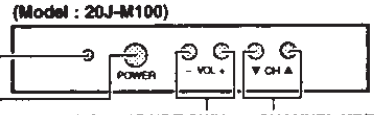
■ Location of Controls (ENGLISH)

Front Panel



VIDEO/AUDIO IN TERMINALS

(Model : 20J-M100)



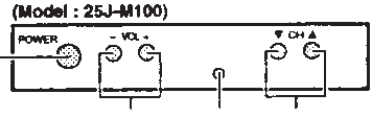
SENSOR AREA FOR REMOTE CONTROL

POWER
Press → ON.
Press again → OFF.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.

CHANNEL UP/DOWN
(▲) Selects next higher channel.
(▼) Selects next lower channel.

(Model : 25J-M100)



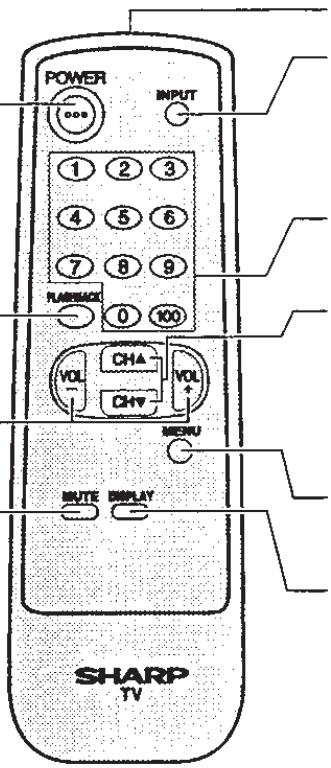
POWER
Press → ON.
Press again → OFF.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.

SENSOR AREA FOR REMOTE CONTROL

CHANNEL UP/DOWN
(▲) Selects next higher channel.
(▼) Selects next lower channel.

BASIC REMOTE CONTROL FUNCTIONS



Infrared Transmitter Window

POWER
Press → On.
Press again → Off.

INPUT
Press → Switch to external video input mode.
Press again → Switch to TV mode.
See page 15.

FLASHBACK
Returns to previously viewed channel.

Direct Access
Accesses any channel by the keypad.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.
• In menu mode, changes or selects the TV adjustments.

CHANNEL UP/DOWN
(▲) Selects next higher channel.
(▼) Selects next lower channel.
• See pages 13, 14 for channel presetting.
• Moves the " ◆ " mark of the MENU screen.

MUTE
Press → Mutes sound.
Press again → Restores sound.
• CLOSED CAPTION appears when sound is muted.

MENU
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

DISPLAY
Press → Displays receiving channel for 4 seconds.
Press again → Removes display.
• Temporarily displays receiving channel when in Closed Caption mode.

INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.

(2) Before performing adjustment, TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

1.After service has been performed on the horizontal deflection system, high voltage system, B + system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1) Apply 120V AC using a variac transformer for accurate input voltage.
2) Allow for warm up and adjust all customer controls for normal picture and sound.
3) Select a local channel.
4) Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 20.9±1.5V(19J-M100/100S/M150/CJ19M10),21.5±1.5V(20J-M100/CJ20M10).
5) Apply external 26.8V DC at TP653 by using an external DC supply, TV must be shut off.
6) To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652.Now make sure that normal picture appears on the screen.
7) If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with strong air signal or properly tuned in test signal.
3. Set service mode on (See next page.),Service No.S19 and Bus data "01" (Y-mute on).
4. The voltage should be approximately 26.0kV(19J-M100/100S/M150/CJ19M10) 26.5kV(20J-M100/CJ20M10)(at zero beam)."
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test,make Y-mute off (normal mode).

For adjustments of this model, the bus data is convered to various analog signals by the D-A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage.

Follow the steps below whenever service adjustment is required. See Figure "B" to determine if service adjustments are required.

To enter the service mode .

While Pressing the Vol-up and Ch- up buttons at once,plug the AC cord into a wall socket.Now the TV set is switched on and enters the service mode.
To exit the service mode, shut the television off by pressing the power button.

1.Service mode -

Before putting unit into the service mode, check, that customer adjustments are in the normal mode. use the reset function in the video adjust menu to ensure customer controls are in their

2.Service number selection

Once in the service mode, press the channel up or channel down button on the remote transmitter or at the set. the service adjustment number will vary in increments of one, from "S01" to S19.
Select the item you wish to adjust.

3.Data number selection

Press the volume up or down button to adjust the data number.

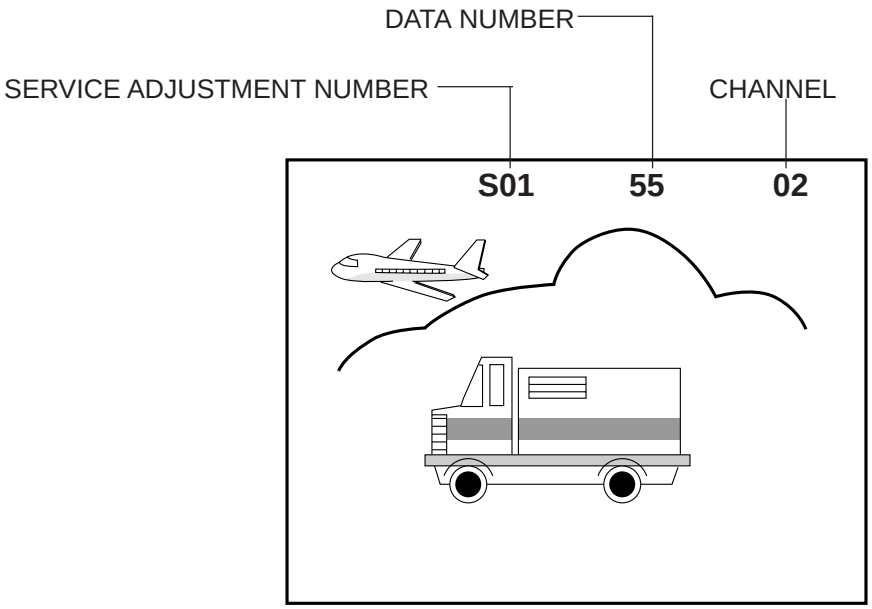


Figure B.

SERVICE NUMBER	ADJUSTMENT ITEM	DATA		ADJUSTMENT CONTENTS
		INITIAL VALUE	RANGE	
S01	PICTURE	55	00-7F	
S02	TINT	46	00-7F	
S03	COLOR	32	00-7F	
S04	BRIGHTNESS	40	00-7F	
S05	SHARPNESS	28	00-3F	Must be set to “24”
S06	VERTICAL PHASE	00	00-07	Must be set to “00”~"03"
S07	HORIZONTAL PHASE	12	00-1F	
S08	RF-AGC	2A	00-3F	
S09	VERTICAL AMP	20	00-3F	
S10	VCO	2C	00-7F	
S11	R CUT-OFF	00	00-FF	
S12	G CUT -OFF	00	00-FF	
S13	B CUT-OFF	00	00-FF	
S14	G GAIN	7F	00-FF	
S15	B GAIN	7F	00-FF	
S16	TRAP(3.58MHz)	00	00 or 01	Must be set to “00”
S17	BALANCE	20	00-3F	Must be set to “20”
S18	C.C.POSITION	18	00-7F	
S19	Y-MUTE	00	00,01,03	00=NORMAL, 01=no”Y, 03=NO VERTICAL”

Table - A

Holding down both the CH UP/DOWN keys on the TV set at service mode for more then 2 seconds will automatically write the above initial values into IC2101.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2101.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201.
IC2101	X		Holding down both the CH UP/DOWN keys on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2101.
CRT	X		Adjust items related to picture tube only.

Table - B

■ adjustment

VCO Adjustment

1. Connect a digital voltmeter between pin (44) of IC201 and ground.
2. Select a good local channel.
3. Enter the service mode. select adjustment "S10".
4. Adjust the data so that digital voltmeter shold read 2.2V
5. Adjustment is complete, remove the volt-meter, return to "normal" mode.

RF AGC Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S08".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

NOTE1 :You will have to come out of the service mode to select another channel.

NOTE2 :Setting the data to "00" will pro-duce a black raster.

Screen adjustment

1. Connect a digital voltmeter between TP852 and TP853 on the CRT socket PWB.

Note:These test points may not be provided.
Then connect the voltmeter to both ends of R852 located near Q852 on the foil side.

2. Select a good local channel.
3. Enter the service mode and select service adjustment “S03” and set the data value to “00” to set the color level to minimum.(Record original data code under adjustment “S03” before changing) You may skip this step if you selected a B/W picture or monoscope pattern.
4. Select service adjustment “S19” and adjust the data value to “01” this turn off the luminance signal (Y-mute).
5. Select service adjustment "S04" and adjust data value to obtain 0.17 volts on the digital voltmeter.
6. Adjust the master screen cotrol untill raster darkens to the point where raster is barely seen.
7. Adjust service adjustments "S11" red,"S12" green and "S13" blue to obtain a good grey scale with normal whites at low brightness level.
8. Select service adjustment “S19” and reset data to “00”.
   Select service adjustment “S03” and reset data to obtain normal color level.
9. Remove digital voltmeter.
   Reset master screen cotrol to obtain normal brightness range.

White balance adjustment

1. Have unit receive a good local channel.
2. Enter the service mode. select service adjustment "S03" and set to "00" (minimum color) . "S03" does not have to be adjusted if you selected a B/W picture or monoscope pattern.
3. Alternately adjust service adjustment data of "S14" and "S15" untill a good grey scale with normal whites is obtained.
4. Select service adjustment "S03" and adjust data to obtain normal color level.

Sub-picture adjustment

1. Have unit receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select service adjustment "S01".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Have unit receive a good local channel.
2. Set customer tint control to center of it's range.
3. Enter the service mode and select service adjustment "S02".
4. Adjust "S 02" data value to obtain normal flesh tones.

Sub-color adjustment

1. Have unit receive a good local channel.
2. Make sure the customer color control is set to center position .
3. Enter the service mode and select service adjustment "S03".
4. Adjust "S03"data value to obtain normal color level.

Sub-brightness adjustment

1. Have unit receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select service adjustment "S04".
4. Adjust "S04"data value to obtain normal brightness level.

Vertical-size adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S09".
3. While observing the top and bottom of the screen, adjust "S09" data value to proper vertical size .

Vertical phase adjustment

1. Enter the service mode and select service adjustment "S06".
2. Adjust data value to "00"~"03" so that picture is approximate center.

Note: This must be set "00"~"03" when adjust another data retrace line will be appear.

"Horizontal position adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S07".
3. Adjust "S07" data value so that picture is centered.

Caption position adjustment (horizontal)

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S18".
3. A black text box appears on the screen (see Figure C) .
4. Adjust "S18" data value so that text box is positioned in the center of the screen.

3.58MHz trap adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S16" .
3. This is a two position adjustment, "00"is ON , "01" is OFF.
4. Adjust data value to "00" for normal viewing.

Sharpness and Audio balance adjustments

1. Have unit receive a good local channel.
2. Enter the service mode and select "S05" for sharpness and "S17" for balance.
- Sharpness adjustments
3. Adjust data value to "24" (center of data range) for sharpness adjustment.
- Audio balance adjustments
4. Adjust data value to "20" (center of data range) for Audio balance adjustment.

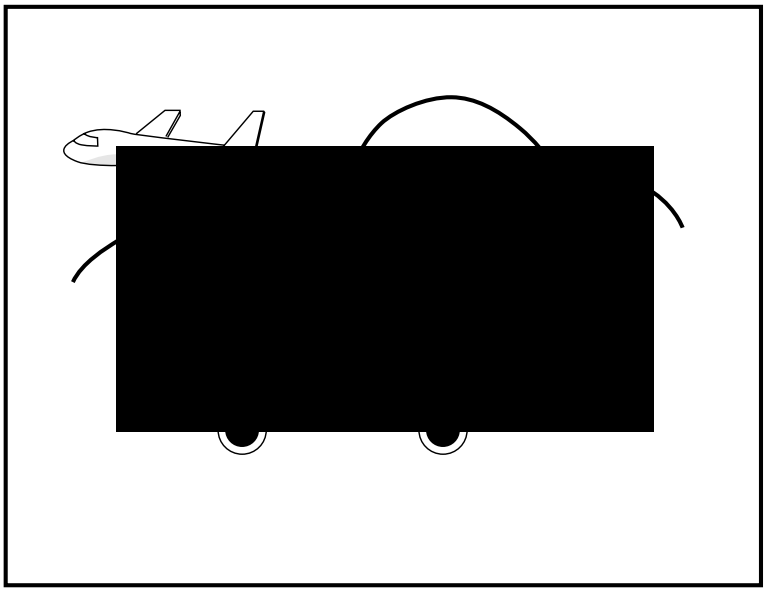
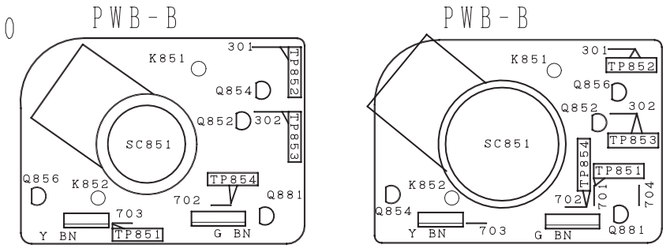


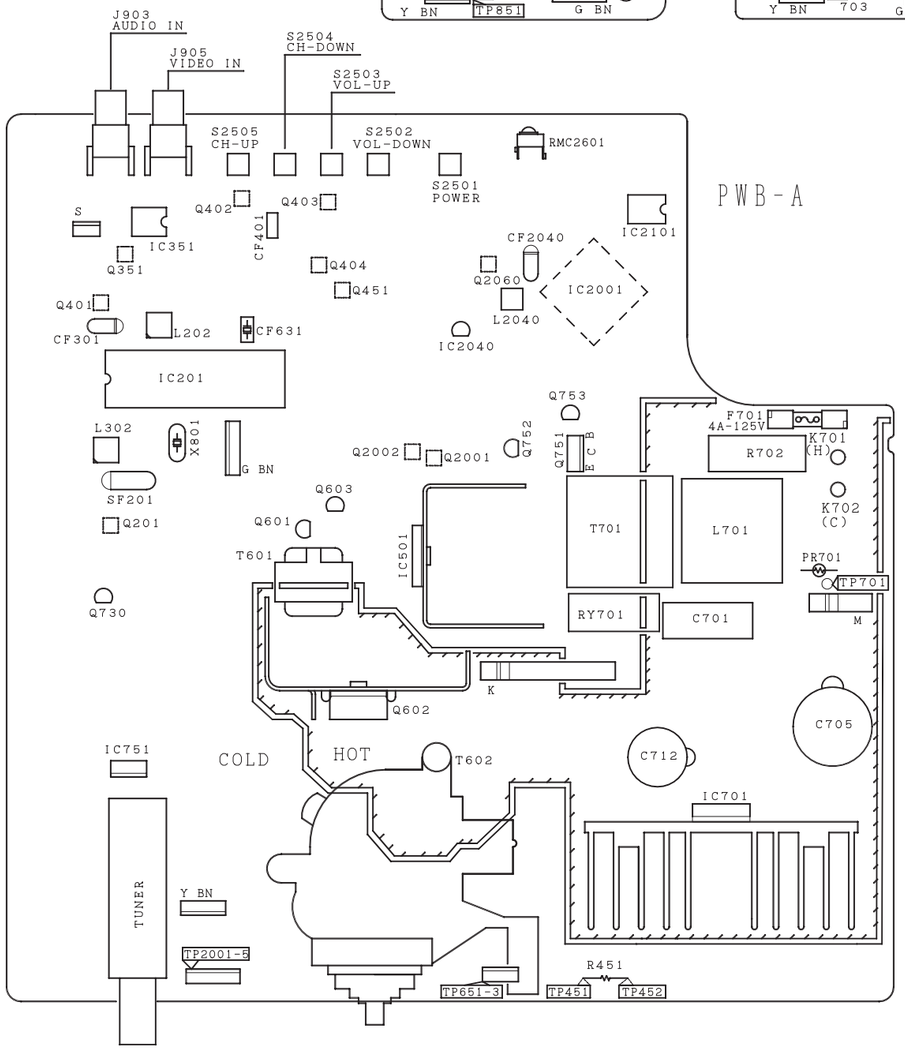
Figure C.

CHASSIS LAYOUT

MODEL 19J-M100/M150
MODEL CJ19M10
MODEL 19J-M100S
MODEL 20J-M100
MODEL CJ20M10
MODEL 20MJ10

MODEL 20MJ10
MODEL 19J-M100S ONLY

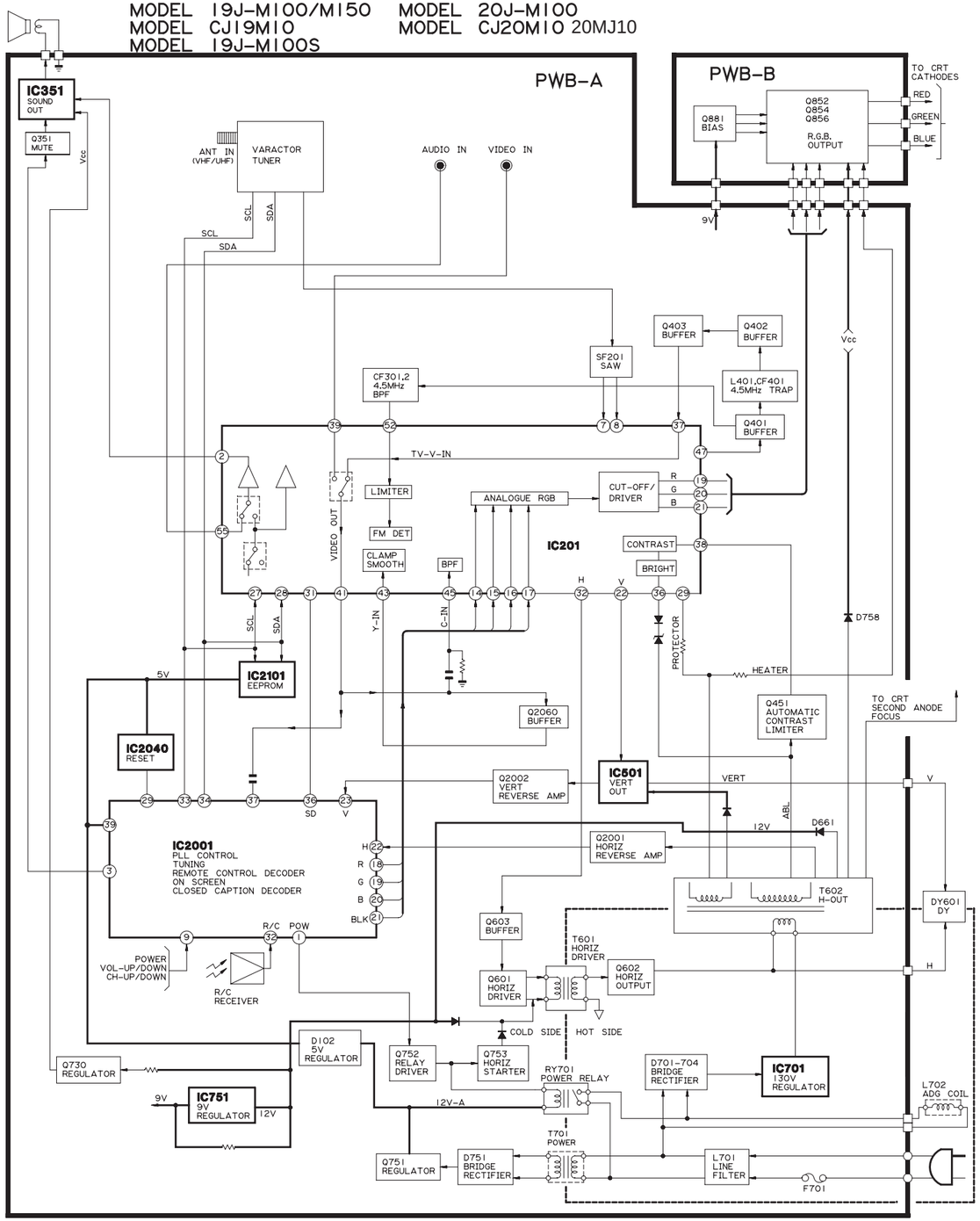




BLOCK DIAGRAM

MODEL 19J-M100/M150
MODEL CJ19M10
MODEL 19J-M100S

MODEL 20J-M100
MODEL CJ20M10 20MJ10



19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10	19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10

DESCRIPTION OF SCHEMATIC DIAGRAM

NOTE:

1. *The unit of resistance "ohm" is omitted (K:1000 ohms, M:1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted P: μμ F.*
4. *(G) indicates ±2% tolerance may be used.*
5. *⏚ indecates line isolated ground.*
6. *⏚ indecates hot ground.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

WAVEFORM MEASUREMENT CONDITIONS:

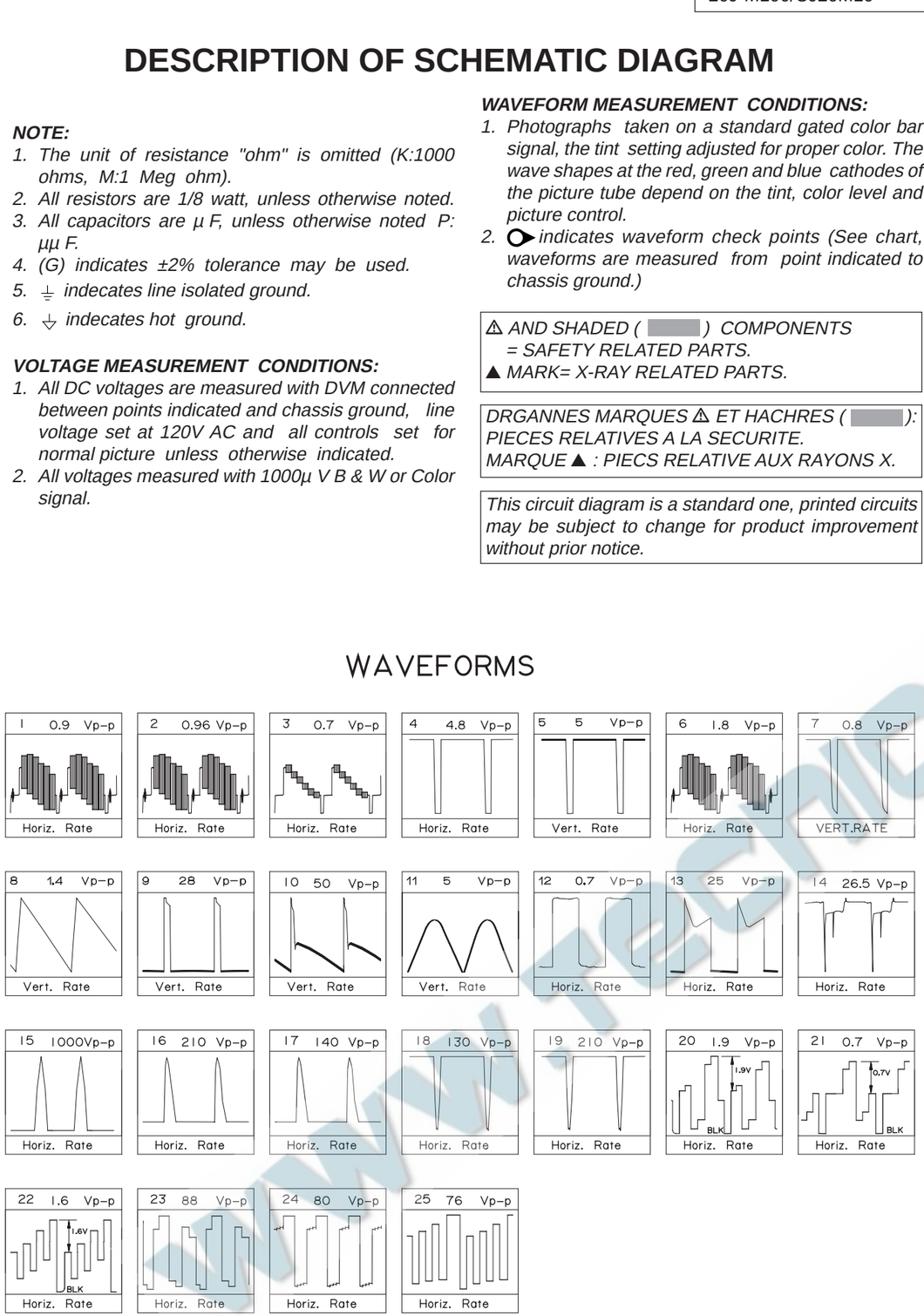
1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *◯▶ indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

⚠ AND SHADED (▭) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK= X-RAY RELATED PARTS.

DRGANNES MARQUES ⚠ ET HACHRES (▭): PIECES RELATIVES A LA SECURITE.
MARQUE ▲ : PIECS RELATIVE AUX RAYONS X.

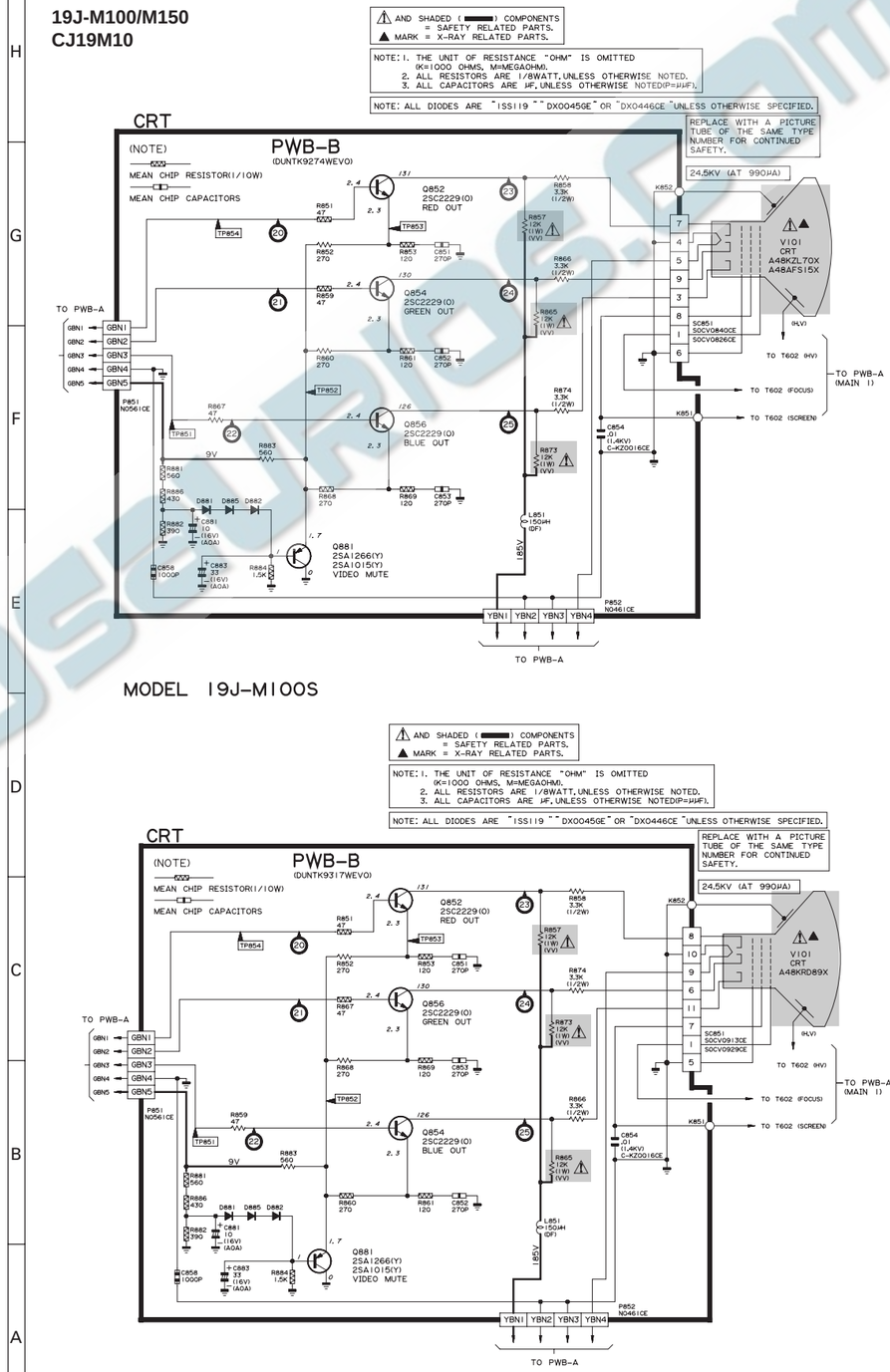
This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



SCHEMATIC DIAGRAM :CRT Unit

19J-M100/M150
CJ19M10


⚠ AND SHADED (▭) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2. ALL RESISTORS ARE 1/8WATT, UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
REPLACE WITH A PICTURE TUBE OF THE SAME TYPE NUMBER FOR CONTINUED SAFETY.
CRT
PWB-B
(DUNTK9274WEVO)
(NOTE)
MEAN CHIP RESISTOR(1/10W)
MEAN CHIP CAPACITORS
24.5KV (AT 990μA)
Q852 2SC2229(O) RED OUT
Q854 2SC2229(O) GREEN OUT
Q856 2SC2229(O) BLUE OUT
Q881 2SA1266(Y) 2SA1015(Y) VIDEO MUTE
V101 CRT A48KZL70X A48AFS15X
TO PWB-A
TO T602 (HV)
TO T602 (FOCUS)
TO T602 (SCREEN)
TO PWB-A (MAIN 1)
185V
9V

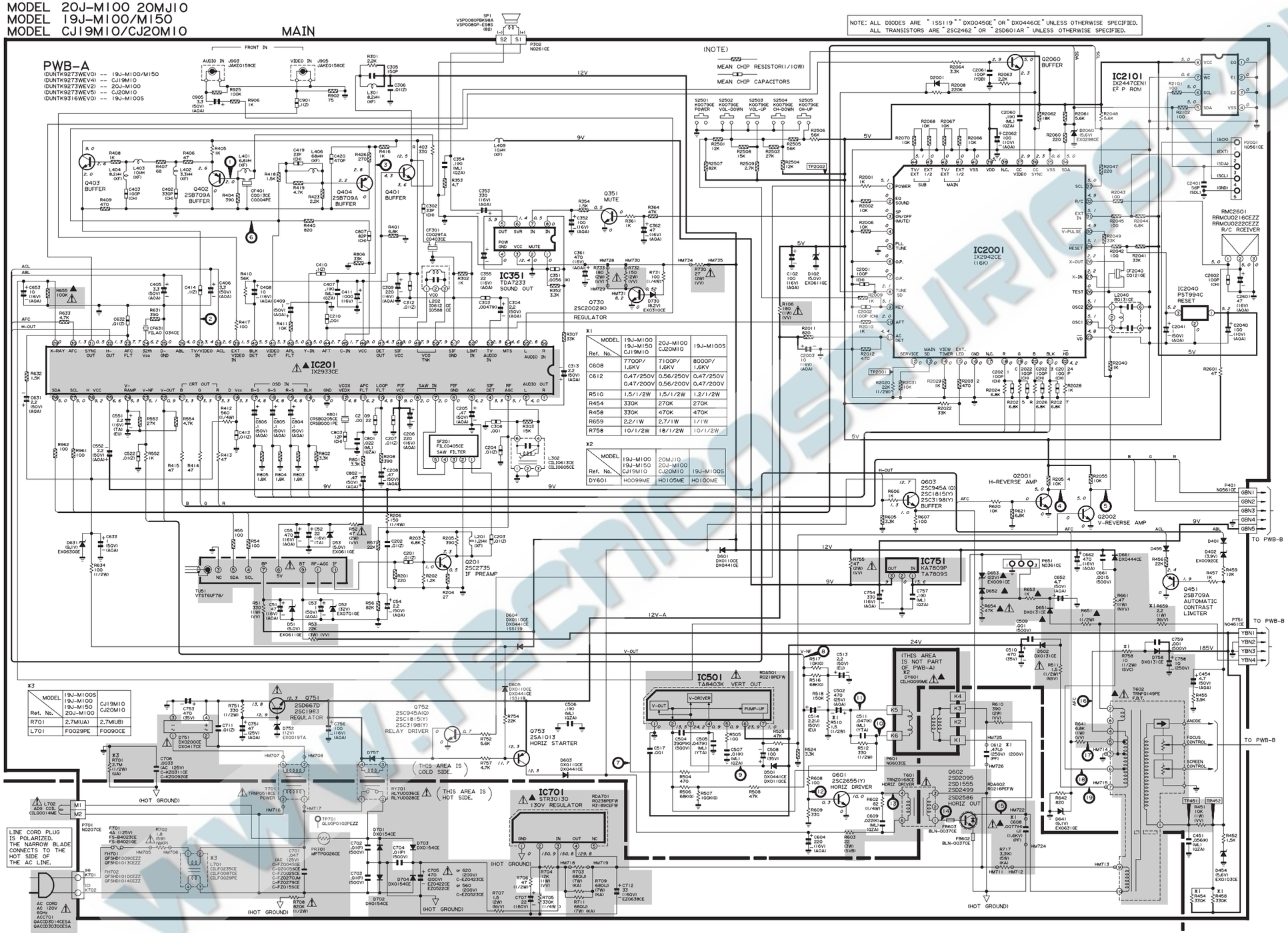
MODEL 19J-M100S

⚠ AND SHADED (▭) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2. ALL RESISTORS ARE 1/8WATT, UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
REPLACE WITH A PICTURE TUBE OF THE SAME TYPE NUMBER FOR CONTINUED SAFETY.
CRT
PWB-B
(DUNTK9317WEVO)
(NOTE)
MEAN CHIP RESISTOR(1/10W)
MEAN CHIP CAPACITORS
24.5KV (AT 990μA)
Q852 2SC2229(O) RED OUT
Q856 2SC2229(O) GREEN OUT
Q854 2SC2229(O) BLUE OUT
Q881 2SA1266(Y) 2SA1015(Y) VIDEO MUTE
V101 CRT A48KRD89X
TO PWB-A
TO T602 (HV)
TO T602 (FOCUS)
TO T602 (SCREEN)
TO PWB-A (MAIN 1)
185V
9V

SCHEMATIC DIAGRAM:MAIN Unit

MODEL 19J-M100S
MODEL 20J-M100 20MJ10
MODEL 19J-M100/M150
MODEL CJ19M10/CJ20M10

MAIN



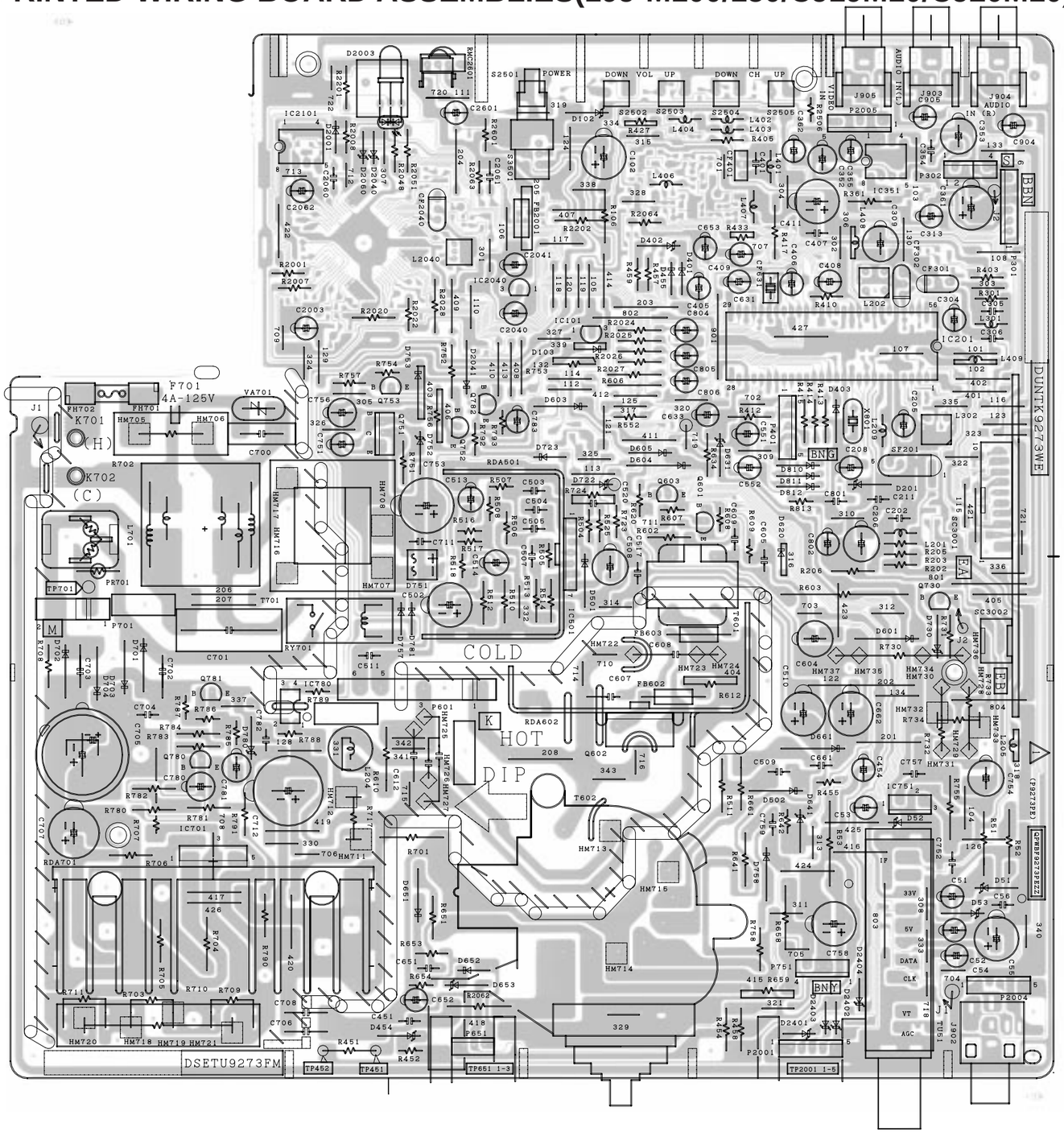
MODEL / Ref. No.	19J-M100 19J-M150 CJ19M10	20J-M100 CJ20M10	19J-M100S
C608	7700P/ 1.6KV	7100P/ 1.6KV	8000P/ 1.6KV
C612	0.47/250V 0.47/200V	0.56/250V 0.56/200V	0.47/250V 0.47/200V
R510	1.5/1/2W	1.5/1/2W	1.2/1/2W
R454	330K	270K	270K
R458	330K	470K	470K
R659	2.2/1W	2.7/1W	1/1W
R758	10/1/2W	18/1/2W	10/1/2W

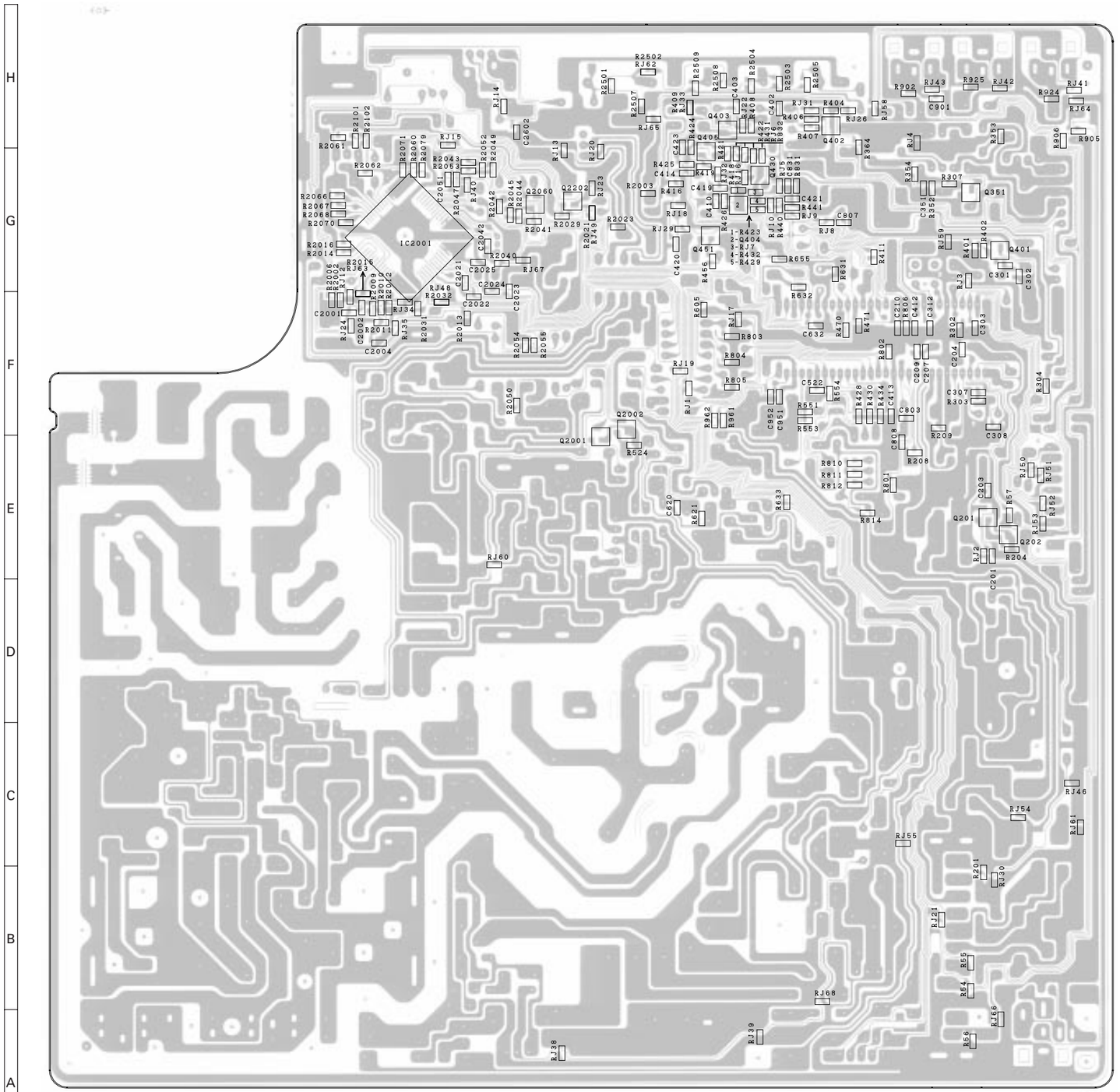
MODEL / Ref. No.	19J-M100 19J-M150 CJ19M10	20MJ10 20J-M100 CJ20M10	19J-M100S
DY601	HO099ME	HO105ME	HO100ME

MODEL / Ref. No.	19J-M100S 19J-M100 19J-M150 20J-M100	CJ19M10 CJ20M10
R701	2.7M(UA)	2.7M(UB)
L701	F0029PE	F0090CE

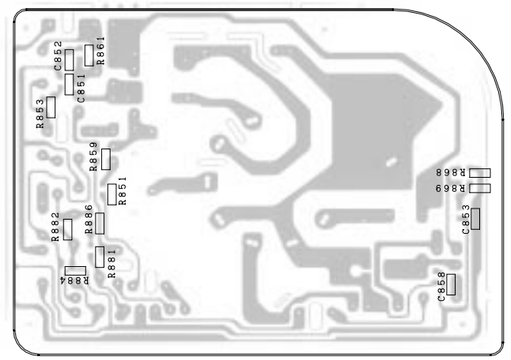
19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10	19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10

PRINTED WIRING BOARD ASSEMBLIES(19J-M100/150/CJ19M10/CJ20M10)





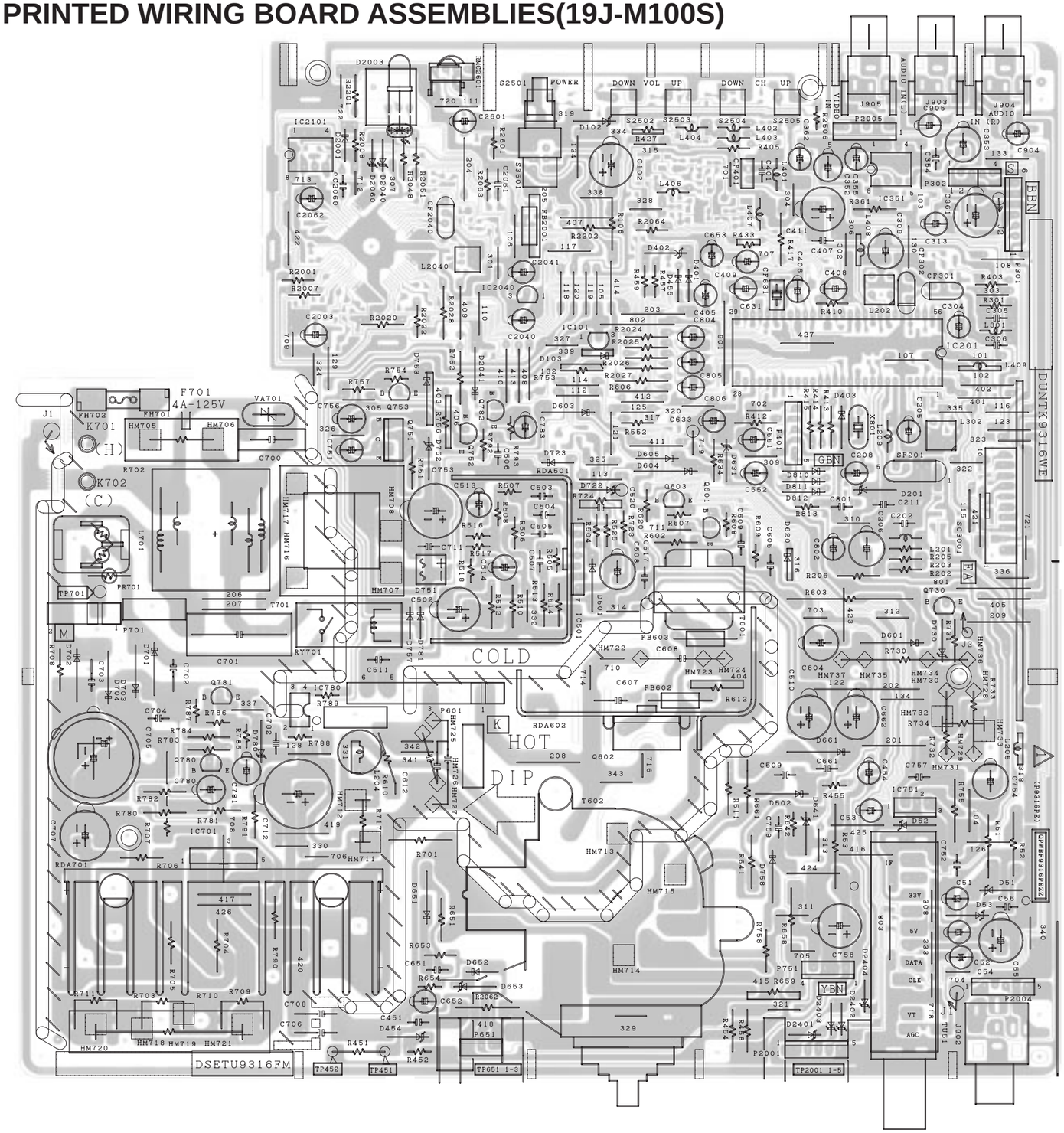
PWB-A:MAIN Unit (Chip Parts Side)

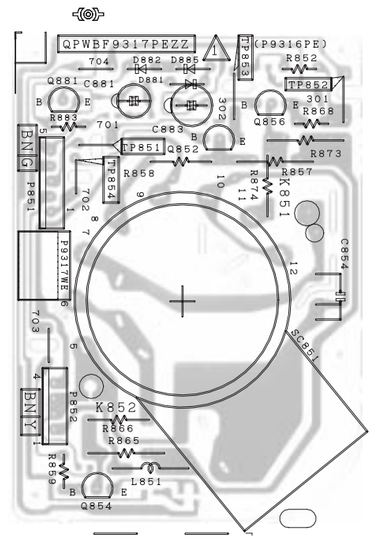


PWB-B:CRT Unit (Chip Parts Side)

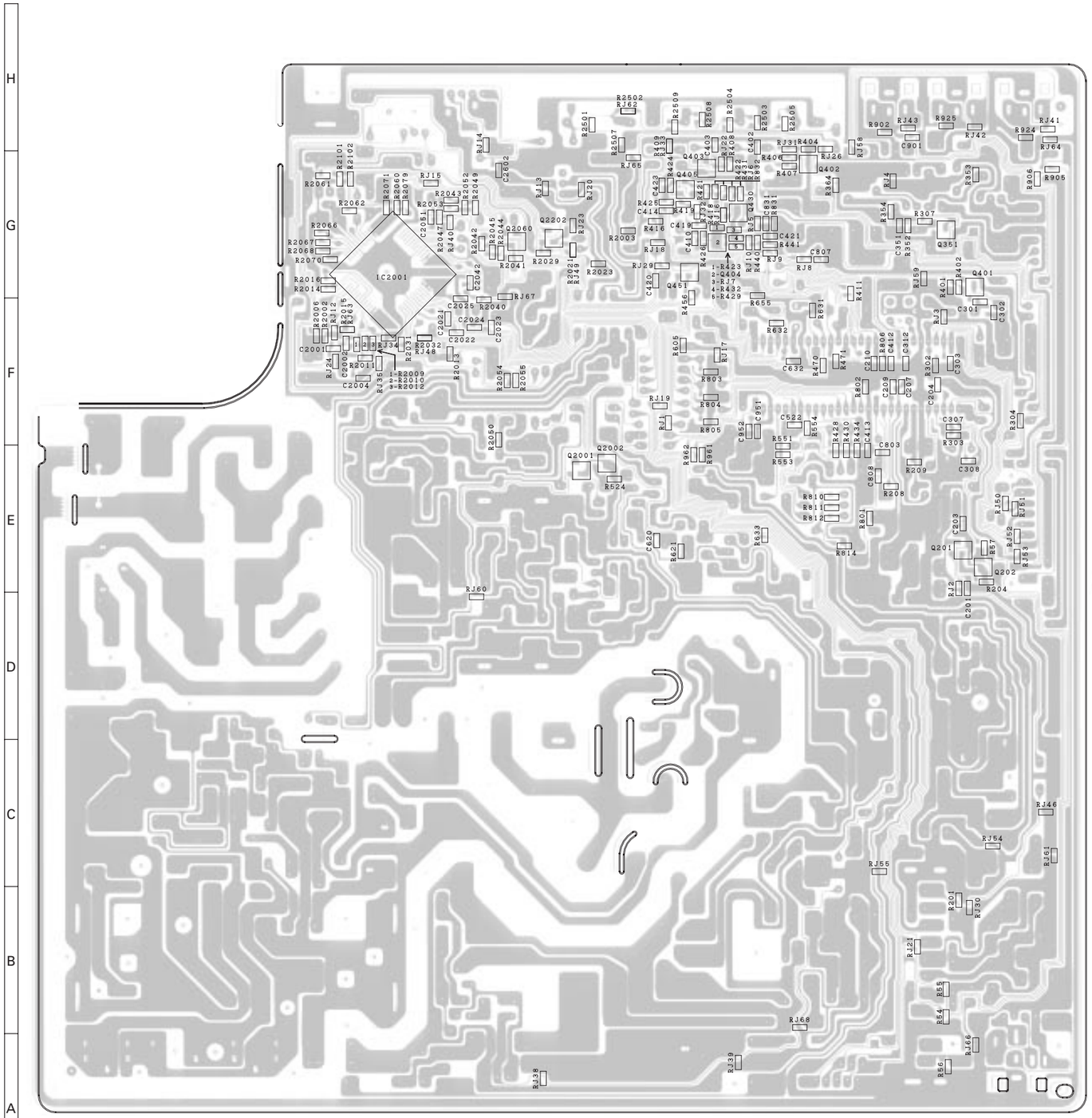
19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10	19J-M100/100S/150/CJ19M10/ 20J-M100/CJ20M10

PRINTED WIRING BOARD ASSEMBLIES(19J-M100S)

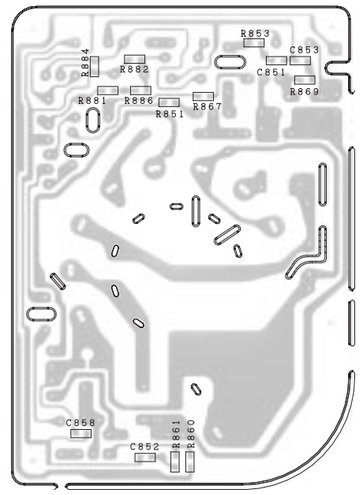




PWB-B CRT PWB (Wiring Side)



PWB-A MAIN PWB (Chip parts)



PWB-B CRT PWB (Chip parts)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual ; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

MARK★: SPARE PARTS-DELIVERY SECTION

MARK▲ : X- RAY RELATED PARTS

LISTE DES PIECES

CHANGE DES PIECES

Les pi`eces de rechange qui pr élelesentent ces caract éleristiques sp éleciales de s élecurit éle, sont identifi élees dans ce manuel : les pi`eces élelectriques qui pr élesentent ces particularit éles, sont rep éler élee par la marque ⚠ et sont hachur élees dans les listes de pi`eces et dans les diagrammes sch élematiques.
La substitution d'une pi`ece de rechange par une autre qui ne pr éLesente pas les m éoemes caract éLeristiques de s élecurit éle que la pi`ece recommand élee parl'usine et dans ce manuel de service, peut provoquer une éLelectrocution, un incendie ou toutautre sinistre.

"COMMENT COMMANDER LES PIECES DE RECHANGE"

Pour que votre commande soit rapidement et correctement remplie, veuillez fournir les renseignements suivants.

1. NUMERO DU MODELE
2. NO. DE REF
3. NO. DE PIECE
4. DESCRIPTION

in **CANADE**: Contact SHARP Electronics of Conada Limited Phone (416) 890-2100

★MARQUE: SECTION LIVRAISON DES PIECES DE RECHANGE

▲ MARQUE : PIECES RELATIVE AUX RAYONS X

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

19J-M100/150/CJ19M10

▲⚠ V101	VB48AFS15X/*S	M	Picture Tube		CC
or	VB48KZL70X/*S				
⚠ L702	RCiLG0014MEZZ	M	Degaussing Coil		AM
▲⚠ DY601	RCiLH0099MEZZ	M	Deflection Yoke		AY

19J-M100S/20MJ10

▲⚠ V101	VB48KRD89X/1E	M	Picture Tube	CB
⚠ L702	RCiLG0014MEZZ	M	Degaussing Coil	AM
▲⚠ DY601	RCiLH0100MEZZ	M	Deflection Yoke	AZ
	PMAGF3001MEZZ	M	Magnet Ass'y	AG
	MSPRT0002MEZZ	M	Spring for CRT	AA
	QEARC1913MEZZ	M	Grounding part	AE

20J-M100/CJ20M10

▲⚠ V101	VB51KZR50X/*S	M	Picture Tube	
⚠ DY601	RCiLH0105MEZZ	M	Deflection Yoke	
⚠ L702	RCiLG0017MEZZ	M	Degaussing Coil	

PRINTED WIRING BOARDASSEMBLYS
(NOT REPLACEMENT ITEM)

PWB-A	DUNTK9273WEV0	_	Main Unit (19J-M100/150)	_
PWB-A	DUNTK9273WEV2	_	Main Unit (20J-M100)	_
PWB-A	DUNTK9273WEV5	_	Main Unit (CJ20M10)	_
PWB-A	DUNTK9273WEV4	_	Main Unit (CJ19M10)	_
PWB-A	DUNTK9316WEV0	_	Main Unit (19J-M100S)	_
PWB-B	DUNTK9274WEV2	_	CRT Unit (20J-M100/CJ20M10)	
PWB-B	DUNTK9274WEV0	_	CRT Unit(19J-M100/150)	_
PWB-B	DUNTK9317WEV0	_	CRT Unit(19J-M100S)	_

Ref. No.	Part No.	★	Description	Code

DUNTK9273WEV0/V2/V4/V5
DUNTK9316WEV0/V2 MAIN UNIT

TUNER

NOTE:THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDETLY.

⚠ TU51	VTUVTST6UF78/	J	Tuner	BD

INTEGRATED CIRCUITS

▲⚠ IC201	RH-iX2933CEZZ	J	TAL268N	AX
▲⚠ IC201	RH-iX2573CEZZ	J	(20MJ10)	
IC351	VHiTDA7233/-1	J	TDA7233	AF
⚠ IC501	VHiTA8403K/-1	J	TA8403k	AL
▲⚠ IC701	VHiSTR301301E	J	I.C.	AP
⚠ IC751	VHiKA7809Pi-1	R	KiA7809Pi	AE
IC2001	RH-iX2942CEZZ	J	TMPA8701CHF106	AV
IC2040	VHiPST994C/-1	J	PST994C	AD
IC2101	RH-iX2447CEN1	J	ST24C01B6	AL

TRANSISTORS

You can substitute "VS2SD601AR/-1" for "VS2SC2462-C-1".

Q201	VS2SC2735//1E	J	2SC2735	AC
Q351	VS2SD601AR/-1	J	2SD601(AR)	AC
Q401	VS2SD601AR/-1	J	2SD601(AR)	AC
Q402	VS2SB709AR/-1	J	2SB709(AR)	AC
Q403	VS2SD601AR/-1	J	2SD601(AR)	AC
Q404	VS2SB709AR/-1	J	2SB709AR	AC
Q451	VS2SB709AR/-1	J	2SB709AR	AC
Q601	VS2SC2655Y/-1	J	2SC2655(Y)	AE
⚠ Q602	VS2SD2095//1E	J	2SD2095	AN
or	VS2SD2095//1E			
or	VS2SD2499//1E			
or	VS2SD2586//1E			

DUNTK9273WEV0/V2/V4/V5
DUNTK9316WEV0/V2 MAIN UNIT

Ref. No.	Part No.	★	Description	Code
Q603	VS2SC945AQ/-1	J	2SC945(AQ)	AB
or	VS2SC1815YW-1			
or	VS2SC3198-Y-1			
Q730	VS2SC2002-K1A	J	2SC2002	AC
⚠ Q751	VS2SD667D//-1	J	2SD667(D)	AE
or	VS2SC1983//-2			
Q752	VS2SC945AQ/-1	J	2SC945(AQ)	AB
or	VS2SC1815YW-1			
or	VS2SC3198-Y-1			
Q753	VS2SA1013//1E	J	2SA1013	AD
Q2001	VS2SD601AR/-1	J	2SD601(AR)	AC
Q2002	VS2SD601AR/-1	J	2SD601(AR)	AC
Q2060	VS2SD601AR/-1	J	2SD601(AR)	AC

DIODES

Ref. No.	Part No.	★	Description	Code
D51	RH-EX0611GEZZ	J	Zener Diode	AA
D52	RH-EX0701GEZZ	J	Zener Diode	AB
D53	RH-EX0611GEZZ	J	Zener Diode	AA
D102	RH-EX0611GEZZ	J	Zener Diode	AA
D401	VHD1SS119//-1	J	Diode	AB
D402	RH-EX0092CEZZ	J	Zener Diode	AB
D454	RH-EX0103CEZZ	J	Zener Diode	AB
D455	VHD1SS119//-1	J	1SS119	AB
D501	RH-DX0441CEZZ	J	Diode	AC
or	RH-DX0110CEZZ			
or	RH-DX0441CEZZ			
D502	RH-DX0131CEZZ	J	Diode	AC
D601	RH-DX0441CEZZ	J	Diode	AC
D603	RH-DX0441CEZZ	J	Diode	AC
or	RH-DX0110CEZZ			
or	RH-DX0441CEZZ			
D604	VHD1SS119//1E	J	1SS119	AA
D605	VHD1SS119//1E	J	1SS119	AA
or	RH-DX0110CEZZ			
or	RH-DX0441CEZZ			
D631	RH-EX0630GEZZ	J	Zener Diode	AA
D641	RH-EX0631GEZZ	J	Zener Diode	AA
▲⚠ D651	RH-DX0131CEZZ	J	Diode	AC
▲⚠ D652	VHD1SS119//-1	J	1SS119	AB
▲⚠ D653	RH-EX0091CEZZ	J	Zener Diode	AB
D661	RH-DX0444CEZZ	J	Diode	AH
D701	RH-DX0154CEZZ	J	Diode	AC
D702	RH-DX0154CEZZ	J	Diode	AC
D703	RH-DX0154CEZZ	J	Diode	AC
D704	RH-DX0154CEZZ	J	Diode	AC
D730	RH-EX0310CEZZ	J	Zener Diode	AA
D751	RH-DX0417CEZZ	J	Diode	AE
or	RH-DX0200CEZZ			
D752	RH-EX0019TAZZ	J	Zener Diode	AB
D757	VHD1SS119//-1	J	Diode	AB
D758	RH-DX0131CEZZ	J	Diode	AC
D2001	VHD1SS119//-1	J	1SS119	AB
D2060	RH-EX0298CEZZ	J	Zener Diode	AA

PACKAGED CIRCUITS

Ref. No.	Part No.	★	Description	Code
PR701	RMPTP0026CEZZ	J	Packaged Circuit	AF
X801	RCRSB0001PEZZ	R	Crystal,3.58MHz	AL
or	RCRSB0205CEZZ			

FILTERS

Ref. No.	Part No.	★	Description	Code
CF301	RFiLC0403CEZZ	J	Filter	AE
or	RFiLC0029TAZZ			
CF401	RFiLC0013CEZZ	J	Filter	AE
or	RFiLC0004PEZZ			
CF631	RFiLA0034CEZZ	J	Filter	AD
CF2040	RFiLC0121GEZZ	J	Filter	AD
SF201	RFiLC0405CEZZ	J	S.A.W.Filter	AH

COILS

Ref. No.	Part No.	★	Description	Code
L201	VP-XF1R2K0000	J	1.2µH	AB
L202	RCiLi0612CEZZ	J	If Coil	AE
L301	VP-XF8R2K0000	J	8.2µH	AB
L302	RCiLi0613CEZZ	J	If Coil	AE
or	RCiLC0605CEZZ			
L401	VP-XF6R8K0000	J	6.8µH	AB
L402	VP-XF3R3K0000	J	3.3µH	AB
L403	VP-XF100K0000	J	10µH	AB
L404	VP-XF8R2K0000	J	8.2µH	AB
L406	VP-XF680K0000	J	68µH	AB
L409	VP-XF100K0000	J	10µH	AB
⚠ L701	RCiLF0029PEZZ	R	Coil	AH
or	RCiLF0087CEZZ (19J-M100/M100S/M150/20J-M100)			
or	RCiLF0235CEZZ			
⚠ L701	RCiLF0090CEZZ	R	Coil (CJ19M10/CJ20M10)	AL
⚠ L701	RCiLF0087CEZZ	R	Coil (20MJ10)	
or	RCiLF0235CEZZ			
L2040	RCiLB0131CEZZ	J	Oscillation Coil	AE

TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
T601	RTRNZ0168CEZZ	J	Transformer	AH
▲⚠ T602	RTRNF0149PEZZ	R	H-OUT	BE
⚠ T701	RTRNP0518CEZZ	J	Power	AN

CAPACITORS

EL:Electrolytic

Ref. No.	Part No.	★				Code
C51	VCEA0A1CW476M	J	47	16V	EL.	AB
C52	VCSATA1CE226K	J	22	16V	Tantalum	AD
C53	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C54	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C55	VCEA0A1CW477M	J	470	16V	EL.	AC
C102	VCEA0A1CW107M	J	100	16V	EL.	AC
C201	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C202	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C203	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C204	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA

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Ref. No.	Part No.	★	Description			Code
C205	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C206	VCEA0A1CW227M	J	220	16V	EL.	AC
C207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C208	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C209	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C210	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C302	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C303	VCKYCY1HB472K	J	4700p	50V	Ceramic	AA
C304	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C305	VCKYPA1HB151K	J	150p	50V	Ceramic	AA
C306	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C308	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C309	VCEA0A1CW227M	J	220	16V	EL.	AC
C312	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C313	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C351	VCKYCY1HB562K	J	5600p	50V	Ceramic	AA
C352	VCEA0A1CW107M	J	100	16V	EL.	AC
C353	VCEA0A1CW337M	J	330	16V	EL.	AC
C354	RC-QZA104TAYK	J	0.1	50V	Mylar	AB
C355	VCEA0A1CW226M	J	22	16V	EL.	AB
C361	VCEA0A1CW477M	J	470	16V	EL.	AC
C362	VCEA0A1CW476M	J	47	16V	EL.	AB
C402	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
C403	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C405	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C406	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C407	RC-QZA104TAYK	J	0.1	50V	Mylar	AB
C408	VCEA0A1CW106M	J	10	16V	EL.	AB
C409	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C410	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C411	VCEAGA1CW108M	J	1000	16V	EL.	AD
C413	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C414	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C419	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C420	VCCCCY1HH471J	J	470p	50V	Ceramic	AA
C451	RC-QZA563TAYK	J	0.056	50V	Mylar	AB
C454	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C502	VCEA0A1EW477M	J	470	25V	EL.	AD
C504	VCKYPA2HB391K	J	390p	500V	Ceramic	AA
C505	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C506	RC-QZA104TAYK	J	0.1	50V	Mylar	AB
C507	RC-QZA103TAYK	J	0.01	50V	Mylar	AA
C508	VCEAGA1VW107M	J	100	35V	EL.	AC
C509	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C510	VCEAGA1VW477M	J	470	35V	EL.	AD
C511	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C513	VCEACA1HC225M	J	2.2	50V	EL.	AC
C514	VCEACA1HC225J	J	2.2	50V	EL.	AC
C517	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
C522	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C551	VCSATA1CE225K	J	2.2	16V	Tantalum	AB
C552	VCEA0A1HW225M	J	2.2	50V	EL.	AB

Ref. No.	Part No.	★	Description			Code
C604	VCEA0A1CW227M	J	220	16V	EL.	AC
▲⚠ C608	VCFPPD3CA772H	J	7700p	1600V	Metal.P.Film (19J-M100/150/CJ19M10)	AF
▲⚠ C608	VCFPPD3CA802H	J	8000p	1600V	Metal.P.Film (19J-M100S/20MJ10)	
▲⚠ C608	VCFPPD3CA712H	J	7100p	1600V	Metal.P.Film (20J-M100/CJ20M10)	AE
C609	RC-QZA223TAYK	J	0.022	50V	Mylar	AB
C612	VCFPPJ2EB474J	J	0.47	250V	Metal.P.Film (19J-M100/150/CJ19M10	AF m
C612	VCFPPJ2EB564J	J	0.56	250V	Metal.P.Film (20J-M100/CJ20M10/ CJ19M10)	
C631	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C632	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C633	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C652	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C653	VCEA0A1CW106M	J	10	16V	EL.	AB
C661	VCKYPA2HB152K	J	1500p	500V	Ceramic	AC
C662	VCEA0A1CW477M	J	470	16V	EL.	
C701	RC-FZ015SCEZZ	J	0.047	AC125V	Plastic	AE
or	RC-FZ004SGEZZ					
or	RC-QZ005SCEZZ					
or	RC-FZ002SCEZZ					
or	RC-FZ00279CEZZ					
C702	VCKYPB2HE103P	J	0.01	500V	Ceramic	AB
C703	VCKYPB2HE103P	J	0.01	500V	Ceramic	AB
C704	VCKYPB2HE103P	J	0.01	500V	Ceramic	AB
⚠ C705	RC-EZ0522CEZZ	J	470	200V	EL.	AN
or	RC-EZ0422CEZZ					
or	RC-EZ0423CEZZ					
or	RC-EZ0523CEZZ					
⚠ C706	RC-KZ0092GEZZ	J	0.0033	AC250V	Ceramic	AC
or	RC-KZ0311CEZZ					
⚠ C707	VCEAGA2CW226M	J	22	160V	EL.	AD
C711	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
⚠ C712	RC-EZ0638CEZZ	J	33	160V	EL.	AG
C751	VCEA0A1CW476M	J	47	16V	EL.	AB
C753	VCEAGA1VW477M	J	470	35V	EL.	AD
C754	VCEA0A1CW337M	J	330	16V	EL.	AC
C756	VCEA0A1CW107M	J	100	16V	EL.	AC
C757	RC-QZA104TAYK	J	0.1	50V	Mylar	AB
⚠ C758	VCEAGA2EW106M	J	10	250V	EL.	AC
C759	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C801	RC-QZA223TAYK	J	0.022	50V	Mylar	AB
C802	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C803	VCCCCY1HH120J	J	12p	50V	Ceramic	AA
C804	VCEA0A1HW104M	J	0.1	50V	EL.	AB
C805	VCEA0A1HW104M	J	0.1	50V	EL.	AB
C806	VCEA0A1HW104M	J	0.1	50V	EL.	AB
C807	VCCCCY1HH820J	J	82p	50V	Ceramic	AA
C901	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C905	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C2001	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2002	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2003	VCEA0A1CW106M	J	10	16V	EL.	AB

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Ref. No.	Part No.	★	Description			Code
C2021	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2022	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2023	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2024	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2040	VCEA0A1AW107M	J	100	10V	EL.	AB
C2041	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C2060	RC-QZA104TAYK	J	0.1	50V	Mylar	AB
C2061	VCKYD41HB101K	J	100p	50V	Ceramic	AA
C2062	VCEA0A1AW107M	J	100	10V	EL.	AB
C2401	VCCSD41HL560J	J	56p	50V	Ceramic	AA
C2601	VCEA0A1CW476M	J	47	16V	EL.	AB
C2602	VCCCCY1HH101J	J	100p	50V	Ceramic	AA

RESISTORS

Ref. No.	Part No.	★	Description			Code
RJ1	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ3	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ5	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ6	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ7	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ9	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ10	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ12	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ13	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ14	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ15	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ17	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ18	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ19	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ20	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ21	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ24	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ26	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ29	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ30	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ32	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ35	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ40	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ49	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ52	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ53	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ55	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ59	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ62	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ63	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ64	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ65	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ66	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
RJ68	VRN-MD2AL000J	J	0	0.1W	Metal.Film	AA
⚠ R51	VRS-VV3AB331J	J	330	1W	Metal.Oxide	AA
⚠ R52	VRS-VV3DB470J	J	47	2W	Metal.Oxide	AA
⚠ R53	VRS-VV3LB223J	J	22k	3.0W	Metal.Oxide	AB
R54	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R55	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R56	VRN-MD2AL823J	J	82k	0.1W	Metal.Film	AA
R57	VRN-MD2AL223J	J	22k	0.1W	Metal.Film	AA
⚠ R106	VRS-VV3AB181J	J	180	1W	Metal.Oxide	AA
R201	VRN-MD2AL221J	J	220	0.1W	Metal.Film	AA
R202	VRD-RA2BE122J	J	1.2k	1/8W	Carbon	AA
R203	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R204	VRN-MD2AL270J	J	27	0.1W	Metal.Film	AA
R205	VRD-RA2BE391J	J	390	1/8W	Carbon	AA
R206	VRD-RA2EE151J	J	150	1/4W	Carbon	AA
R208	VRN-MD2AL391J	J	390	0.1W	Metal.Film	AA
R301	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R302	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R303	VRN-MD2AL153J	J	15k	0.1W	Metal.Film	AA
R307	VRN-MD2AL333J	J	33k	0.1W	Metal.Film	AA
R352	VRN-MD2AL332J	J	3.3k	0.1W	Metal.Film	AA
R353	VRN-MD2AL4R7J	J	4.7	0.1W	Metal.Film	AA
R354	VRN-MD2AL152J	J	1.5k	0.1W	Metal.Film	AA
R361	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R364	VRN-MD2AL473J	J	47k	0.1W	Metal.Film	AA
R401	VRN-MD2AL682J	J	6.8k	0.1W	Metal.Film	AA
R403	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R404	VRN-MD2AL391J	J	390	0.1W	Metal.Film	AA
R405	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R406	VRN-MD2AL470J	J	47	0.1W	Metal.Film	AA
R407	VRN-MD2AL680J	J	68	0.1W	Metal.Film	AA
R408	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R409	VRN-MD2AL471J	J	470	0.1W	Metal.Film	AA
R410	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R411	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
R412	VRD-RA2EE561J	J	560	1/4W	Carbon	AA
R413	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R414	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R415	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R416	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R417	VRD-RA2BE101J	J	100	1/8W	Carbon	AA
R418	VRN-MD2AL152J	J	1.5k	0.1W	Metal.Film	AA
R419	VRN-MD2AL472J	J	4.7k	0.1W	Metal.Film	AA
R423	VRN-MD2AL222J	J	2.2k	0.1W	Metal.Film	AA
R426	VRN-MD2AL271J	J	270	0.1W	Metal.Film	AA
R440	VRN-MD2AL821J	J	820	0.1W	Metal.Film	AA
⚠ R451	VRS-VV3AB103J	J	10k	1W	Metal.Oxide	AA
R452	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R454	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
			(19J-M100/150)			
R454	VRD-RA2BE474J	J	470k	1/8W	Carbon	AA
			(20J-M100/CJ20M10)			
R455	VRD-RA2BE392J	J	3.9k	1/8W	Carbon	AA
R456	VRN-MD2AL223J	J	22k	0.1W	Metal.Film	AA
R457	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R458	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
			(19J-M100/150)			
R458	VRD-RA2BE474J	J	470k	1/8W	Carbon	AA
			(20J-M100/CJ20M10)			
R458	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
R459	VRD-RA2BE123J	J	12k	1/8W	Carbon	AA

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MAIN UNIT

Ref. No.	Part No.	★	Description			Code
R504	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R505	VRD-RA2BE101J	J	100	1/8W	Carbon	AA
R506	VRD-RA2BE683G	J	68k	1/8W	Carbon	AA
R507	VRD-RA2BE104G	J	100k	1/8W	Carbon	AA
R508	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
R510	VRD-RM2HD1R5J	J	1.5	1/2W	Carbon	AA
R510	VRD-RM2HD1R2J	J	1.2	1/2W	Carbon	AA
			(19J-M100S/20MJ10)			
⚠ R511	VRN-SV2HB1R5J	J	1.5	1/2W	Metal.Film	AA
R512	VRD-RM2HD331J	J	330	1/2W	Carbon	AA
R516	VRD-RA2BE683G	J	68k	1/8W	Carbon	AA
R517	VRD-RA2BE103G	J	10k	1/8W	Carbon	AA
R518	VRD-RA2BE154J	J	150k	1/8W	Carbon	AA
R524	VRN-MD2AL332J	J	3.3k	0.1W	Metal.Film	AA
R525	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
R552	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R553	VRN-MD2AL273J	J	27k	0.1W	Metal.Film	AA
R554	VRN-MD2AL472J	J	4.7k	0.1W	Metal.Film	AA
R602	VRD-RA2EE820J	J	82	1/4W	Carbon	AA
⚠ R603	VRS-SV3LB220J	J	22	3.0W	Metal.Oxide	AB
R605	VRN-MD2AL332J	J	3.3k	0.1W	Metal.Film	AA
R606	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R607	VRD-RA2BE101J	J	100	1/8W	Carbon	AA
R608	VRD-RA2BE101J	J	100	1/8W	Carbon	AA
R609	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
⚠ R610	VRS-VV3DB391J	J	390	2W	Metal.Oxide	AA
R620	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R621	VRN-MD2AL682J	J	6.8k	0.1W	Metal.Film	AA
R631	VRN-MD2AL391J	J	390	0.1W	Metal.Film	AA
R632	VRN-MD2AL152J	J	1.5k	0.1W	Metal.Film	AA
R633	VRN-MD2AL472J	J	4.7k	0.1W	Metal.Film	AA
R634	VRD-RM2HD101J	J	100	1/2W	Carbon	AA
⚠ R641	VRS-VV3AB682J	J	6.8k	1W	Metal.Oxide	AA
R642	VRD-RA2BE821J	J	820	1/8W	Carbon	AA
▲⚠ R651	VRD-RM2HD1R0J	J	1.0	1/2W	Carbon	AA
▲⚠ R653	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
▲⚠ R654	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
▲⚠ R655	VRN-MD2AL104J	J	100k	0.1W	Metal.Film	AA
⚠ R659	VRN-VV3AB2R2J	J	2.2	1W	Metal.Film	AA
			(19J-M100/100S/150/ CJ19M10)			
R659	VRN-VV3AB2R7J	J	2.7	1W	Metal.Film	AA
			(20J-M100/CJ20M10)			
⚠ R661	VRN-VV3ABR47J	J	0.47	1W	Metal.Film	AA
⚠ R701	VRC-UA2HG275K	J	2.7M	1/2W	Solid	AA
⚠ R701	VRC-UB2HG275K	J	2.7M	1/2W	Solid	AA
			(CJ19M10/CJ20M10)			
⚠ R702	VRW-KP3HC1R8K	J	1.8	5W	Cement	AC
⚠ R703	VRS-KA3NG681J	J	680	7.0W	Metal.Oxide	AF
⚠ R704	VRS-VV3AB123J	J	12k	1W	Metal.Oxide	AA
R705	VRD-RA2EE334J	J	330k	1/4W	Carbon	AA
R706	VRD-RM2HD470J	J	47	1/2W	Carbon	AA
⚠ R707	VRN-VV3DB1R5J	J	1.5	2W	Metal.Film	AB
R708	VRD-RM2HD824J	J	820k	1/2W	Carbon	AA
⚠ R709	VRS-KA3NG681J	J	680	7.0W	Metal.Oxide	AF
⚠ R711	VRS-KA3NG681J	J	680	7.0W	Metal.Oxide	AF
⚠ R717	VRS-KA3HG3R3K	J	3.3	5W	Metal.Oxide	AD
⚠ R730	VRS-VV3DB270J	J	27	2W	Metal.Oxide	AA
R731	VRD-RA2EE101J	J	100	1/4W	Carbon	AA
⚠ R732	VRS-VV3DB151J	J	150	2W	Metal.Oxide	AA
⚠ R733	VRS-VV3DB181J	J	180	2W	Metal.Oxide	AA
R751	VRD-RM2HD331J	J	330	1/2W	Carbon	AA
R752	VRD-RA2BE562J	J	5.6k	1/8W	Carbon	AA
R754	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
⚠ R755	VRS-VV3DB470J	J	47	2W	Metal.Oxide	AA
R757	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
⚠ R758	VRS-SV2HC100J	J	10	1/2W	Metal.Oxide	AA
			(19J-M100/M100S/150/ CJ19M10)			
⚠ R758	VRS-SV2HC180J	J	18	1/2W	Metal.Oxide	AA
			(20J-M100/CJ20M10)			
R801	VRN-MD2AL332J	J	3.3k	0.1W	Metal.Film	AA
R802	VRN-MD2AL332J	J	3.3k	0.1W	Metal.Film	AA
R803	VRN-MD2AL182J	J	1.8k	0.1W	Metal.Film	AA
R804	VRN-MD2AL182J	J	1.8k	0.1W	Metal.Film	AA
R805	VRN-MD2AL182J	J	1.8k	0.1W	Metal.Film	AA
R806	VRN-MD2AL333J	J	33k	0.1W	Metal.Film	AA
R902	VRN-MD2AL750J	J	75	0.1W	Metal.Film	AA
R906	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R925	VRN-MD2AL104J	J	100k	0.1W	Metal.Film	AA
R961	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R962	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R2001	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2002	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
R2006	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
R2008	VRD-RA2BE224J	J	220k	1/8W	Carbon	AA
R2009	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R2010	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R2011	VRN-MD2AL821J	J	820	0.1W	Metal.Film	AA
R2012	VRN-MD2AL471J	J	470	0.1W	Metal.Film	AA
R2020	VRD-RM2HD223J	J	22k	1/2W	Carbon	AA
R2022	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2024	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2025	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2026	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2027	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2028	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2029	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R2031	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
R2032	VRN-MD2AL471J	J	470	0.1W	Metal.Film	AA
R2040	VRN-MD2AL102J	J	1.0k	0.1W	Metal.Film	AA
R2041	VRN-MD2AL333J	J	33k	0.1W	Metal.Film	AA
R2042	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R2043	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R2044	VRN-MD2AL682J	J	6.8k	0.1W	Metal.Film	AA
R2045	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
R2047	VRN-MD2AL221J	J	220	0.1W	Metal.Film	AA
R2048	VRD-RA2BE562J	J	5.6k	1/8W	Carbon	AA

Ref. No.	Part No.	★	Description	Code

DUNTK9273WEV0/V2/V4/V5
DUNTK9316WEV0/V2 MAIN UNIT

	R2049	VRN-MD2AL333J	J	33k	0.1W	Metal.Film	AA
	R2054	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2055	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2060	VRN-MD2AL221J	J	220	0.1W	Metal.Film	AA
	R2061	VRN-MD2AL562J	J	5.6k	0.1W	Metal.Film	AA
	R2062	VRN-MD2AL183J	J	18k	0.1W	Metal.Film	AA
	R2063	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
	R2064	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
	R2066	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2067	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2068	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2070	VRN-MD2AL103J	J	10k	0.1W	Metal.Film	AA
	R2101	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
	R2102	VRN-MD2AL101J	J	100	0.1W	Metal.Film	AA
	R2501	VRN-MD2AL123J	J	12k	0.1W	Metal.Film	AA
	R2503	VRN-MD2AL273J	J	27k	0.1W	Metal.Film	AA
	R2504	VRN-MD2AL123J	J	12k	0.1W	Metal.Film	AA
	R2505	VRN-MD2AL563J	J	56k	0.1W	Metal.Film	AA
	R2506	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
	R2507	VRN-MD2AL823J	J	82k	0.1W	Metal.Film	AA
	R2508	VRN-MD2AL153J	J	15k	0.1W	Metal.Film	AA
	R2509	VRN-MD2AL272J	J	2.7k	0.1W	Metal.Film	AA
	R2601	VRD-RA2BE470J	J	47	1/8W	Carbon	AA

MISCELLANEOUS PARTS

	S2501	QSW-K0079GEZZ	J	Switch,Power	AB
	S2502	QSW-K0079GEZZ	J	Switch,Vol-down	AB
	S2503	QSW-K0079GEZZ	J	Switch,Vol-up	AB
	S2504	QSW-K0079GEZZ	J	Switch,Ch-down	AB
	S2505	QSW-K0079GEZZ	J	Switch,Ch-up	AB
⚠	RY701	RRLYU0036CEZZ	J	Relay	AM
	or	RRLYU0028CEZZ			
⚠	F701	QFS-B4023CEZZ	J	Fuse	AC
	or	QFS-B4021GEZZ			
	FB602	RBLN-0037CEZZ	J	Balun	AB
	FB603	RBLN-0037CEZZ	J	Balun	AB
	FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
	FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
	J903	QJAKE0159CEZZ	J	Jack	AF
	J905	QJAKE0158CEZZ	J	Jack	AF
	P302	QPLGN0261CEZZ	J	Plug	AB
	P401	QPLGN0561CEZZ	J	Plug	AB
	P601	QPLGN0603CEZZ	J	Plug	AB
	P651	QPLGN0361CEZZ	J	Plug	AB
	P701	QPLGN0207CEZZ	J	Plug	AA
	P751	QPLGN0461CEZZ	J	Plug	AB
	P2001	QPLGN0561CEZZ	J	Plug	AB
	RMC2601	RRMCU0222CEZZ	J	Remote Receiver	AL
	or	RRMCU0216CEZZ			
	RDA501	PRDAR0218PEFW	R	Heat Sink	AD
	RDA602	PRDAR0216PEFW	R	Heat Sink	AE
	RDA701	PRDAR0238PEFW	R	Heat Sink	AN
	or	PRDAR3189PEFW			
	TP701	QLUGP0102PEZZ	R	Lug	AA

Ref. No.	Part No.	★	Description	Code

DUNTK9274WEV0/V2
DUNTK9317WEV0 CRT UNIT

TRANSISTORS

Q852	VS2SC2229O/1E	J	2SC2229(O)	AD
Q854	VS2SC2229O/1E	J	2SC2229(O)	AD
Q856	VS2SC2229O/1E	J	2SC2229(O)	AD
Q881	VS2SA1266-Y-1	J	2SA1266(Y)	AA

DIODES

D881	VHD1SS119//-1	J	Diode	AB
D882	VHD1SS119//-1	J	Diode	AB
D885	VHD1SS119//-1	J	Diode	AB

COILS

L851	VP-DF151K0000	J	150µH				AB
R859	VRN-MD2AL470J	J	47	0.1W	Metal.Film		AA
R859	VRN-MD2AL470J	J	47	0.1W	Metal.Film		AA

CAPACITORS

C851	VCCCCY1HH271J	J	270p	50V	Ceramic	AA
C852	VCCCCY1HH271J	J	270p	50V	Ceramic	AA
C853	VCCCCY1HH271J	J	270p	50V	Ceramic	AA
C854	RC-KZ0016CEZZ	J	0.1	1.4kV	Ceramic	AC
C858	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C881	VCEA0A1CW106M	J	10	16V	EL.	AB
C883	VCEA0A1CW336M	J	33	16V	EL.	AB

RESISTORS

	R851	VRN-MD2AL470J	J	47	0.1W	Metal.Film	AA
	R852	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
	R853	VRN-MD2AL121J	J	120	0.1W	Metal.Film	AA
⚠	R857	VRS-VV3AB123J	J	12k	1W	Metal.Oxide	AA
	R858	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
	R859	VRN-MD2AL470J	J	47	0.1W	Metal.Film	AA
	R859	VRD-RA2BE470J	J	47	1/8W	Metal.Film	AA
				(19J-M100S/20MJ10)			
	R860	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
	R860	VRD-MD2AL221J	J	220	0.1W	Carbon	AA
				(19J-M100S/20MJ10)			
	R861	VRN-MD2AL121J	J	120	0.1W	Metal.Film	AA
⚠	R865	VRS-VV3AB123J	J	12k	1W	Metal.Oxide	AA
	R866	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
	R867	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
	R867	VRD-MD2AL470J	J	47	0.1W	Carbon	AA
				(19J-M100S/20MJ10)			
	R868	VRN-MD2AL271J	J	270	0.1W	Metal.Film	AA
	R868	VRD-RA2BE221J	J	220	1/8W	Metal.Film	AA
				(19J-M100S/20MJ10)			
	R869	VRN-MD2AL121J	J	120	0.1W	Metal.Film	AA
⚠	R873	VRS-VV3AB123J	J	12k	1W	Metal.Oxide	AA
	R874	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
	R881	VRN-MD2AL561J	J	560	0.1W	Metal.Film	AA
	R882	VRN-MD2AL391J	J	390	0.1W	Metal.Film	AA
	R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
	R884	VRN-MD2AL152J	J	1.5k	0.1W	Metal.Film	AA
	R886	VRN-MD2AL431J	J	430	0.1W	Metal.Film	AA

Ref. No.	Part No.	★	Description	Code

DUNTK9274WEV0/V2
DUNTK9317WEV0 CRT UNIT

MISCELLANEOUS PARTS

P851	QPLGN0561CEZZ	J	Plug	AB
P852	QPLGN0461CEZZ	J	Plug	AB
SC851	QSOCV0840CEZZ	J	Socket	AK
or	QSOCV0826CEZZ			
	(19J-M100/150/CJ19M10/20J-M100/CJ20M10)			
SC851	QSOCV0913CEZZ			
or	QSOCV0929CEZZ			
	(19J-M100S/20MJ10)			

Ref. No.	Part No.	★	Description	Code

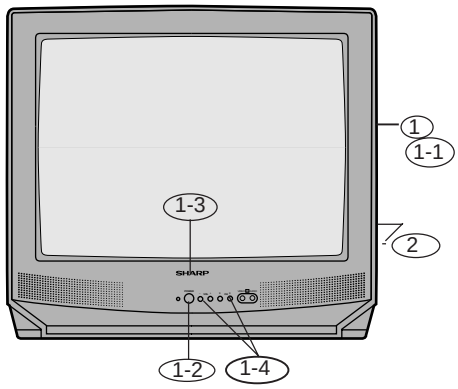
CABINET PARTS

19J-M100/19J-M100S/CJ19M10/20MJ10

1	CCABA1266MES2	M	Cabinet Front Ass'y	BB
1-1	_	M	Cabinet Front	_
1-2	GCOVA1031MEKA	M	Cover	AD
1-3	HBDGB3009MESA	M	Badge "sharp"	AC
1-4	JBTN-1090MEKA	M	Button,CH/VOL-up down	AD
2	GCABB1130MEKA	M	Rear Cabinet	AX

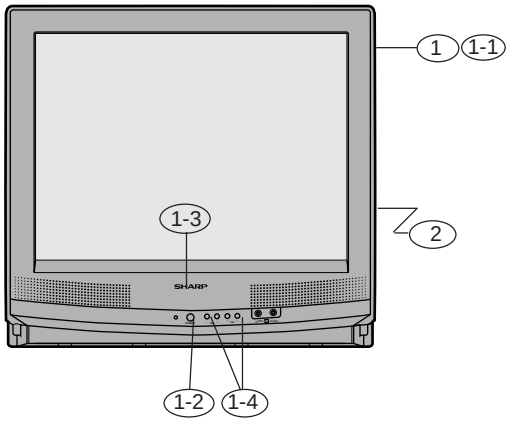
19J-M150

1	CCABA1266MES1	M	Cabinet Front Ass'y	BD
1-1	_	M	Cabinet Front	
1-2	GCOVA1031MEKA	M	Cover	AD
1-3	HBDGB3009MESA	M	Badge "sharp"	AC
1-4	JBTN-1090MEKB	M	Button,CH/VOL-up down	AD
2	GCABB1130MEKB	M	Rear Cabinet	AZ



20J-M100/CJ20M10

1	CCABA1272MES0	M	Cabinet Front Ass'y	BF
1-1	_	M	Cabinet Front	_
1-2	GCOVA1034MEKA	M	Cover	_
1-3	HBDGB3009MESA	M	Badge "sharp"	AC
1-4	JBTN-1098MEKA	M	Button,CH/VOL-up down	_
2	GCABB1126MEKA	M	Rear Cabinet	AX



Ref. No.	Part No.	★	Description	Code

MISCELLANEOUS PARTS

⚠	QACCD3014CESA	M	AC Cord	AH
or	QACCD3030CESA			
	QCNW-2110PEZZ	R	Connecting Cord	_
	QCNW-2111PEZZ	R	Connecting Cord	_
	QCNW-2112PEZZ	R	Connecting Cord	_
	VSP0080PBK98A	M	Speaker	AG
or	VSP0080P-E98S			

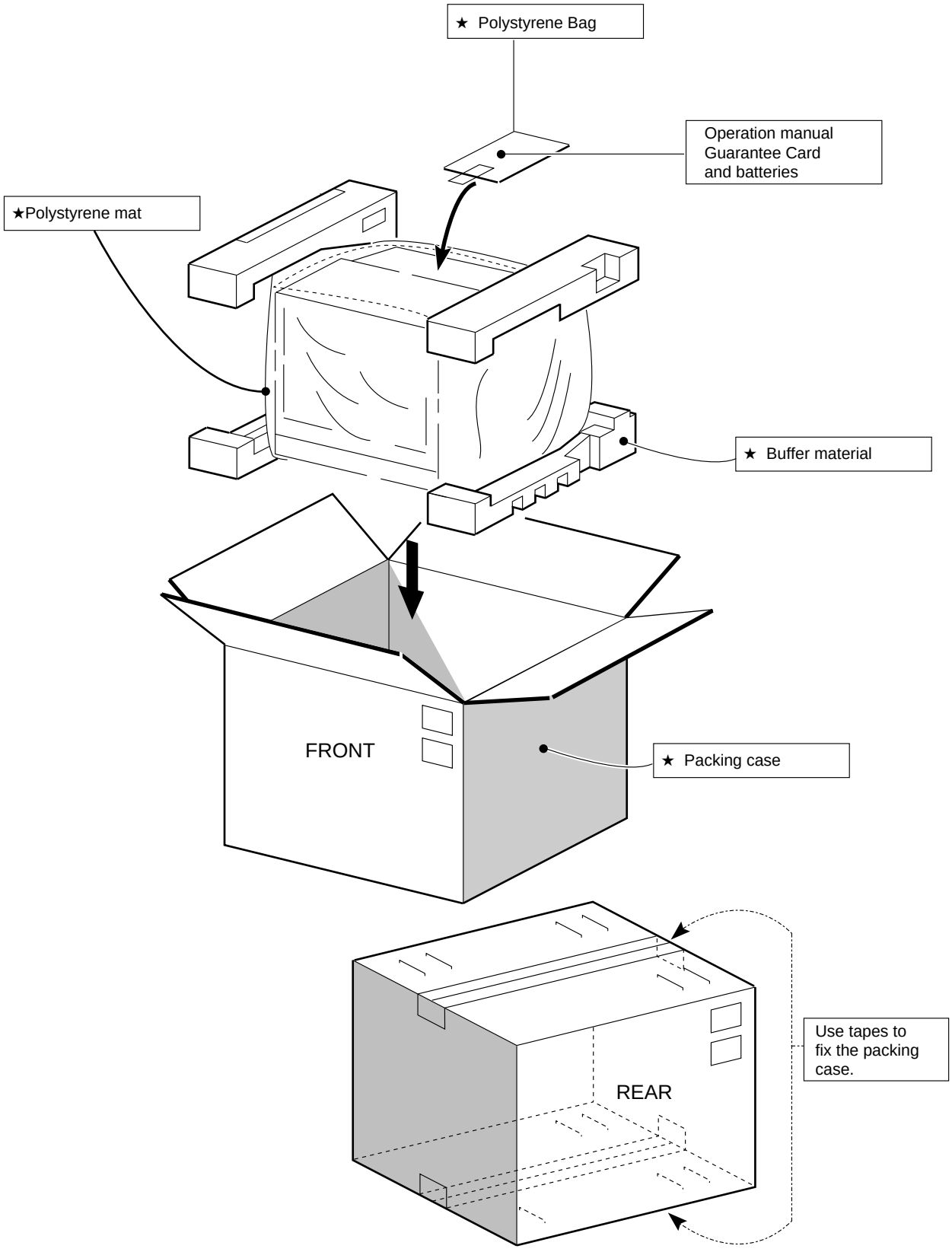
SUPPLIED ACCESORRIES

TGAN-1006MEZZ	M	Guarantee Card (19J-M100/150/100S/20J-M100)	AA
TiNS-6043MEZZ	M	Operation Manual (19J-M100/150/100S)	AC
TiNS-6081MEZZ	M	Operation Manual (CJ19M10)	_
TiNS-6082MEZZ	M	Operation Manual (CJ20M10)	_
TiNS-6031MEZZ	M	Operation Manual (20J-M100)	_
TiNS-6085MEZZ	M	Operation Manual (20MJ10)	
RRMCG1324CESA	M	Infrared R-C (19J-M100/100S/CJ19M10 20J-M100/CJ20M10)	AQ
RRMCG1324CESB	M	Infrared R-C (19J-M150)	AP
RRMCG1339CESA	M	Infrared R-C (20MJ10)	_
RUNTK0393CEZZ	J	Antena Adaptor	_

PACKING PARTS
(NOT REPLACEMENT ITEM)

SPAKC0556MEZZ	M	Packing Case (19J-M100/S/150/CJ19M10)	_
SPAKC0573MEZZ	M	Packing Case (20J-M100/CJ20M10)	_
SPAKC0578MEZZ	M	Packing Case (20MJ10)	_
SPAKP0023MEZZ	M	Polyethylene Sack	_
SPAKX0163MEZZ	M	Buffer Material (19J-M100/S/150/CJ19M10)	_
SPAKX0167MEZZ	M	Buffer Material (20J-M100/CJ20M10)	_
SSAKA0004MEZZ	M	Polyethylene Sack	_

PACKING OF THE SET



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